COAL AGE

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A Single Purpose

BY FLOYD W. PARSONS

THERE is no place on the earth today for a nation made up of nerveless, undecided people. A German Kaiser proposes to be master of the Universe. He exalts himself as superior clay. He justifies the subjugation of weaker nations. He glorifies brutality, prays to a substitute God and makes a religion of war.

This Prince of Death gazes without compassion on a world he has drenched with the blood of countless fathers and sons. He has brought about more misery than was caused by all the tyrants of history combined. Millions of women pray to Heaven for relief from their sufferings, and ask that retribution be sent upon the Teuton beasts who masquerade in the forms of men.

The German people have listened for generations to vicious teachings which are now firmly embedded in their natures. They believe that a policy of sentiment is folly; that enthusiasm for humanity is idiocy; that might is the supreme right, and that a nation has the right to do what it has the power to do; that the present conflict must leave nothing for the vanquished but their eyes to weep with; that war is the most august and sacred of human activities, and that peace is but a means to new wars.

So long as the Hun believes in the virtue of such barbarous doctrines there can be no peace. How can any Christian nation hope to live in a world where a king and his people make slaves of their victims while alive and grind their bones into fertilizer to enrich the soil when dead. How can we expect to live happily on earth with men who say—"Kultur must build its cathedrals upon hills of corpses, seas of tears and the death rattle of the conquered. The lives of human beings are to be conserved only if it makes for the State's advancement."

OVER in France the very flower of American manhood is now shedding its blood. Many of our splendid sons already sleep in graves hastily dug in alien soil. Other Americans are fighting as men never fought before and youngsters with Hun bullets in their bodies try to slip away from the dressing stations and again join their comrades battling fiercely at the front.

While this is going on "over there" what are we doing here at home? Are we working every day, all day? Is every mining official on the job early and at his desk late? Does every miner at the working face say to himself with every four shovels of coal he loads into his car—"There's another 3-inch shell for the Hun"?

Over in Mercer County, Pennsylvania, 150 mine workers who had retired on account of old age went back to work again to help satisfy the urgent need for coal. They knew that every 8000-ton cargo ship that slid down the ways at a shipyard had used up 16,000 tons of coal in its construction. They had learned that every 42 cm. shell our boys fire at the Teutons meant a consumption of 900 pounds of coal, and they have donned their old mine clothes and gone into the fight as nobly as any youth who goes "over the top." What an example for those of us who are yet in our prime!

We are no longer only preparing for war, we are in it and there is no way out except the straight road to the finish. American miners can do more to stop the arrogant Hun than any other class of men on earth. No miner today is a patriot and deserves the friendship of honest, earnest Americans who slacks for a single hour when there are cars to load with coal.

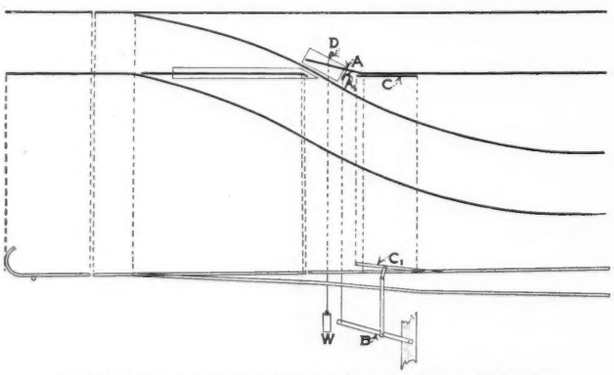
We must win with our Allies now or fight alone later.

IDEAS AND SUGGESTIONS

Automatic Tipple Switch

BY T. F. PRICE
San Antonio, Texas

The accompanying illustration shows a handy arrangement that I designed and installed in the Hale No. 1 mine of the Madeira-Hill Coal Co. at Phillipsburg, Penn. The device was found to be quite efficient and cut down



PLAN AND ELEVATION OF AUTOMATIC SWITCH

the operating expense, since it did away with the services of two men in operating the tipple.

No dimensions are shown on the drawing, as these will vary with the diameter of the car wheel used and the arrangement of the tipple. When a device of this kind, however, is built for wheels 18 in. in diameter, it will successfully handle cars with 14-in. wheels if the other portions of the dump and kickback will also accommodate wheels of this size.

Referring to the illustration, the latch *A* normally stands open, being held in this position by the weight *W*. This latch is operated (closed) by the car pressing down the lever *C*, which depresses the arm *B* and actuates the latch through the medium of the cable A_1. The loaded car is now free to pass over the latch to the dump or kickback. After the passage of the car the latch is again opened by the weight *W*. This permits the free return of the car.

Chasing the Elusive "Bugs" Out of the Commutator

BY FRANK HUSKINSON
Lafayette, Colo.

In the rewinding or repairing of any direct-current type of armature, one of the most important details to attend to before putting any of the leads into the commutator is to test for and remove all short-circuits between the adjacent commutator bars. These are familiarly called "bugs," and in this respect they are rightly named. There has been many a time that the "electrician" was on the verge of "bugs" while chasing these elusive bugs out of the commutator.

An armature will come into the shop for repairs, and probably the top leads will be removed from the commutator and also a few of the bottom leads. Repairs are made and the commutator is given a test for "bugs," with the result that several are found that can not be located on the surface. It is thus necessary to remove the front ring, and sometimes the entire commutator will have to be removed from the armature shaft and taken apart just to clear up a few partially shorted bars or bugs.

Now it is some job to remove a commutator from the armature shaft, take it apart and rebuild it again, all on account of a few bugs. A short-circuit of this kind is as a rule caused by the current leaking across the mica and carbonizing it to a certain degree. If this condition is not removed and the armature is put in service with a partial short or bug between the commutator bars, it results in the burning out of the coils connected to those particular bars. In some cases the resistance is so high at the point of short-circuit that the coil will withstand the effects of the bug for an indefinite period of time. Nevertheless the trouble is always there and is manifested by the short-circuited bars heating. The final results are the burning out of the coil or coils. Or again, it results in the mica rings carbonizing to such an extent that the current eats a path to the iron core, thereby causing a ground that puts the armature out of commission. It is therefore highly important that a commutator be given a thorough test and all "bugs" removed from it.

In my experiences with this class of trouble I have found several effective ways of removing a bug, or partial short-circuit, from between two commutator bars. In making tests I always use one or more lamps in series with my test terminals when the test terminals are placed on adjacent bars. If there is no bug there will be no light; on the other hand, if the bars are shorted the lamp will light up. The nature of the bug can generally be judged by the brightness and wavering of the light. If the trouble is on the visible parts of the commutator it is an easy matter to clear it. If it is in an inaccessible place, such as on the bottom part of the mica and bars, it can sometimes be located by watching the mica closely, as the arc caused by the current jumping across this insulation can be seen through the mica.

To remove such a bug without taking the commutator apart I have had considerable success by taking a small drill and drilling into the mica ring and mica bar at the intersection of the bottom of the bars and the mica rings. After drilling under the bar and mica I take a fine needle hook and proceed to scrape the bottom of the mica bar. The result is that this will as a rule remove the bug. In other words, I drill in to the spot where the mica is carbonized either in the mica bar or the mica ring, and then I scrape the carbonized matter clear of the commutator bars. After testing and finding the

bars clear I fill up the cavity caused by drilling and scraping with a good commutator cement and the repair is complete.

Another effective method that I have employed at times when the drilling failed or it was impossible to use the drill, was to take a piece of flat steel the same width and breadth as the mica between the commutator bars, place this upon the mica bar and tap it with a hammer until the mica is driven down slightly below the level of the other bars. At times it is necessary to slightly loosen the front rings of the commutator to enable the mica bar to drive down a trifle. As a rule, however, this is not necessary, as the mica will drive down without the tightening rings being loosened.

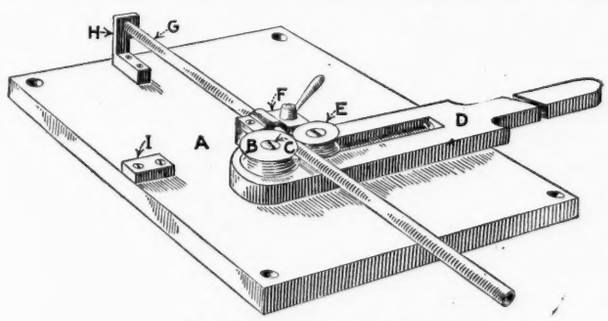
I have often secured satisfactory results from this method. Generally, in driving the mica bar down a trifle it pushes the carbonized part clear of the copper bars. The space resulting from driving the mica down can then be filled up with commutator cement.

I have found that with the two methods described and a little perseverance, I am able to remove a large percentage of the bugs from the commutators without removing them from the armature and without taking them apart. I will admit that the methods used are not always crowned with complete success, but on an average I can state that they are successful nine times out of ten. They are therefore worth a trial any time.

Device for Bending Small Pipe

A device that has been used with success for the bending of pipe and boiler tubes, and that may have other useful applications, is shown in the accompanying sketch, described in the *American Machinist* by Stephen Jaross.

The iron base *A* carries a pilot roller *B* of a diameter of the required bend, reduced, however, to provide for the inevitable spring-back when pressure is removed. The pin *C*, which acts as a pivot for *B*, is also the fulcrum for the lever *D*, which carries at *E* a roller similar to *B*. The roller *E* is adjustable toward and from *C* to permit of the use of rollers *B* of varying size. At *F* is a clamp for the tube *G*, and at *H* a stop for the end of the tube. At *I* is an adjustable stop, which must be placed at such a point as will assure that the right angle of bend



SMALL PIPE BENDER

will be provided after the work springs back on the stress being removed. If a circle of a different diameter is desired, the roller *B* must be changed accordingly.

The grooves in the rulers *B* and *E* should be turned about 0.01 in. deeper than the radius of the exterior of the pipe. As the wall of the pipe is only $\frac{1}{16}$ in. thick or thereabout, it is necessary to reinforce it against collapse. This is done by filling it with fine, dry sand held in place by tight plugs at the pipe ends. The part to be bent is heated. The sand not only helps to keep the pipe in shape, but it aids in retaining the heat, so that the bend can often be made in one operation.

Some Random Notes on Electrical Trouble

By Jack L. Ball
Amsterdam, Ohio.

A ventilating fan was driven by a 10-hp., 250-volt, direct-current motor. When the mine load on the generator was heavy, the motor would slow down; in other words, the speed was governed by the load on the generator. The theory was advanced that the motor was too small for the work intended. A test was made, and it was found that it required just 4½ hp. to drive the fan at its normal speed.

The greenhorn (?) would give no reason why, but when he substituted copper fuse wires of the proper size in place of the lead fuses that had been used, the trouble was cured.

A great deal of trouble was experienced with the brushes of a direct-current generator. Although they were well fitted to the commutator, they would burn and break around the edges. Upon examining these brushes, it was found that the mine electrician in fitting them was not removing the copper sheathing. This is an important point to watch, for this reason: Copper has a much lower resistance than carbon, and when the brush is worn sufficiently so that the copper comes in contact with the commutator surface, the current will localize at this point and will not be evenly distributed throughout the brush. This causes a burning and chipping away at the edges. The remedy is to strip back enough of the sheathing and see that at all times it does not touch the commutator.

Upon starting a 150-kw., direct-current generator one morning, it refused to generate. Someone had gotten the idea that before putting on new brushes it was necessary to boil them in machine oil in order to soften them. After the brushes and commutator were carefully cleaned with gasoline, the trouble was not repeated. In this case, when the commutator was warm the brushes had contact; but as soon as the machine cooled off a film of oil froze around the commutator, keeping the brushes from making actual contact.

Oil should never be used on brushes or commutator unless trouble is invited. If the brushes being used are too hard for the machine, get a softer brush. A safe guide is to write to the makers of the machine, stating what difficulties are being experienced. They will gladly make helpful suggestions.

A 250- to 275-volt generator was brought up to speed, and the voltmeter registered 300—its extreme range. It was found that about half of the resistance of the shunt field rheostat was burned out, and as it was but a few minutes until starting time, something had to be done quickly. An extra resistance column of a mine locomotive was connected in series with the rheostat, it being necessary to cut out about half of the resistance of the column to give the proper range. The column is still in use after several months' service.

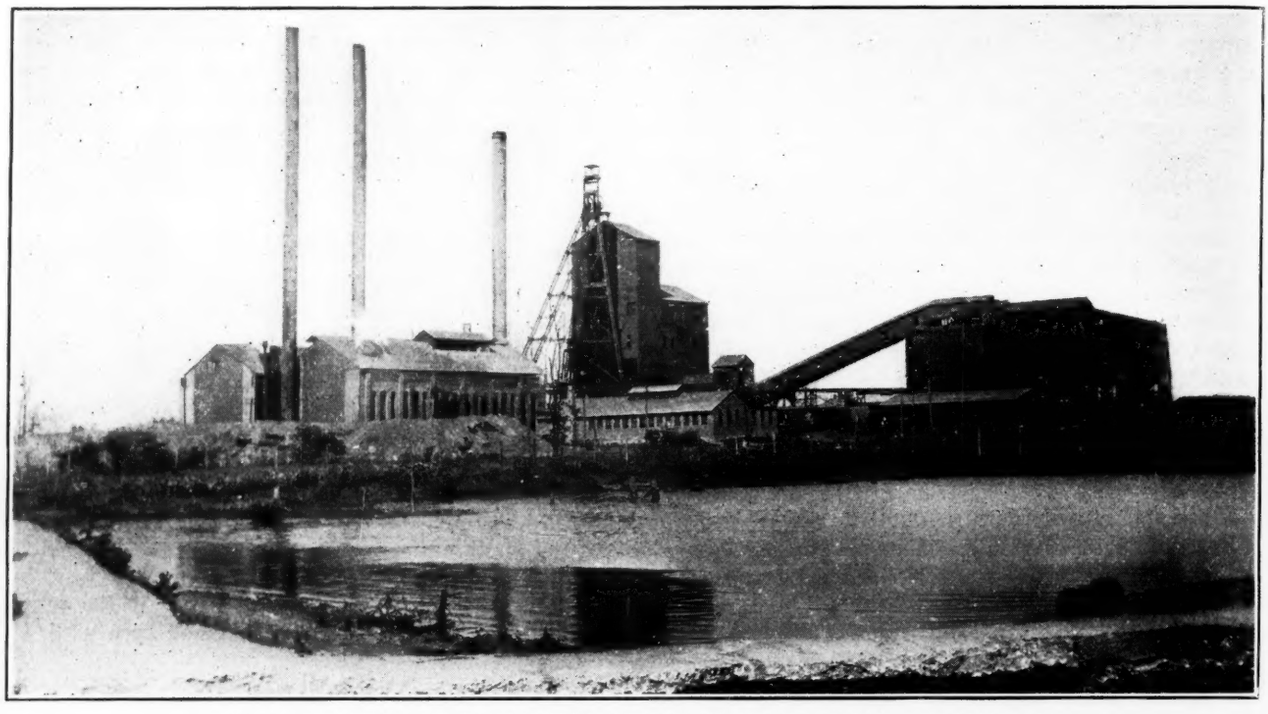


FIG. 1. GENERAL VIEW OF ZEIGLER MINE OF BELL & ZOLLER MINING CO.

New Plant of Pioneer Operation in Franklin County, Illinois

By GEORGE W. HARRIS
Editorial Staff "Coal Age"

PROBABLY few (if any) coal mines in the United States in the last quarter of a century have been more prominently advertised than the old Zeigler mine of the former Zeigler Coal Co. The real development of the Illinois Franklin County field dates from the time Joseph Leiter prospected and took over approximately 8000 acres of coal land upon which he located the town of Zeigler and developed the mines of the eigler Coal Co., now being operated by Bell & Zoller Mining Co., of Chicago, Ill. The subsequent history of this noted plant is too well known to require comment beyond reference to the stormy days when the mine was having such serious labor difficulties.

Coal history in Franklin County dates back about a third of a century, when a prospect hole was drilled for the purpose of finding coal in the vicinity of Benton, the county seat of Franklin County. It is stated that after drilling to a depth of 584 ft. the promoters of the enterprise became discouraged and stopped the drill. At the time prospecting operations were stopped the drill was within about 50 ft. of the No. 6 seam, and the failure to continue drilling probably greatly delayed development in southern Illinois.

A number of years afterward the late W. P. Halliday, of Cairo, Ill., prospected extensively in Franklin County, putting down drill holes and covering this territory systematically. Parallel rows of holes one mile apart each way thoroughly investigated conditions, but unfortunately the results of this investigation were not disclosed. After Mr. Halliday's death it was announced that his policy was eventually to take over a large area of the Franklin County coal which he had prospected and found of such high quality. The next prospecting, and the first one by which the general public was made aware of the rich seam of coal underlying this county, was made by some citizens of West Frankfort in 1896.

It is always interesting to note the successive steps in the development of such a famous field as the Franklin County coal region. In this development the Zeigler mine has always taken a prominent part. Probably the latest investigation of a practice which bids fair to assume importance in big production is along the lines of rotary dumps and skip hoisting. The Bell & Zoller Mining Co. has such equipment for large tonnage (Fig. 1) which has been modified as certain features of the original installation proved unacceptable to its requirements. In this connection the old bottom-dump mine cars have been replaced by solid-end cars; the rotary underground dump and skip have been retained, have been operating for a year and a half, and are a success. In the bottom dump car (Fig. 2) the dog would work loose while trips were en route to the shaft bottom, and the car would empty along the entry. This old car bottom included two doors, each 2 x 3 ft. in dimension, and there was a cross-bar in the center of the bottom. As the trip moved continuously over the dump the bottom was easily knocked open—that part was all right. But sometimes there was difficulty from large lumps of coal lodging in the bottom, and these had to be broken up or barred loose. This special Zeigler

installation and the whole matter of rotary dumps and skip hoisting has been fully covered by a most interesting article entitled "Hoisting Coal in Skips," by John A. Garcia, which appeared in the June 22, 1918, issue of *Coal Age.*

Comments on the practice of the Bell & Zoller Co. at its No. 1 mine are especially interesting when taken in connection with the new plant this company is developing two miles southwest of this operation. The Zeigler mine is close to the top of the leading producers of Franklin County. There are 21 mines in this county, which produced 11,317,657 tons of coal for the year ended June 30, 1917, out of a state tonnage of 77,412,-054 for the same period. At this time the Zeigler mine produced 1,065,359 tons of coal.

Substantial progress has been made at the No. 2 mine of Bell & Zoller. The main and air shafts are well down to coal, and a permanent steel headframe is in place at the latter shaft, together with a Litchfield hoisting engine which is being used to sink the shaft; also some of the permanent buildings about the plant have been constructed. Before the shafts were started diamond drill holes were put down to coal at the site of each shaft. This plan might seem to be an unnecessary precaution in the Franklin County field to some, but instances are on record in other coal fields where this policy would have saved a large amount of money, considerable time, and permitted a much better layout of plant. In one special case in mind, a number of drill holes were put down systematically covering a large tract of coal. The engineers advised the management to locate shafts, tipple and other surface plant on the strength of general information as to depth and condition of the seam to be worked. But no hole had been drilled at the proposed shaft location. It took an expensive main hoist shaft, considerable rock tunnel and valuable time to prove a serious disturbance to the coal at this point. Meanwhile a steel tipple and other modern buildings were practically completed on a layout fitting in with this hoist shaft and could not well be changed to suit other and better development. The shafts at this new No. 2 mine will not have steel buntons, as the management considers the injury done to such construction by falling coal to be a serious objection to the use of steel for that purpose. Wood buntons will be used here and made fireproof with concrete, strengthened and secured to the wood by metal lath and staples. The air shaft will have three compartments; an airway, stairway and a compartment for a cage hoist. The main hoist shaft will have two compartments. The cover over the No. 6 seam at these shafts is about 317 ft., or 100 ft. less than at the hoist shaft at No. 1 mine at Zeigler.

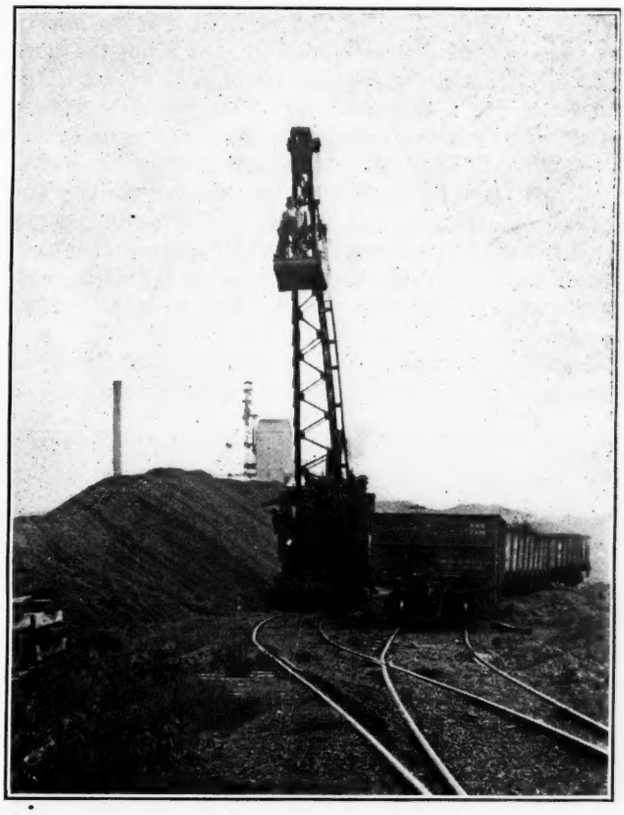


FIG. 3. STORAGE PLANT AT ZEIGLER MINE

FIG. 2. OLD BOTTOM DUMP MINE CAR AT FACE OF ROOM

The new mine will be laid out on the four-entry system, and the main entries will be north, south, east and west to fit the boundaries. The panel system is used in the old mine and a modified panel will be adopted for No. 2.

The middle entry pillar of the four entries will be left solid; there will be no breakthroughs, and the pillar will only be broken where entries cross it. This plan makes it much easier and safer to block off one side of the mine from the other. Also each panel is to have no connection with any other panel, but is to be

a proposition by itself. The new mine is to have a capacity of 5000 tons in eight hours, or about the same as mine No. 1. The mine car will hold 5¼ tons; the Zeigler car is a 4¼-ton car, and that would have been considered a novelty a few years ago. But in the Franklin County big-seam mines, where tonnage is sought and headroom is available, one way to achieve this end is to send trips of big units to the shaft bottom. Also, when coal is hoisted, quantity cargoes count; in fact big cars and double-deck cages or skips are practically essential when a mine aspires to large production.

At the new place a self-dumping cage of the Olsen type, manufactured by the Eagle Iron Works, of Des

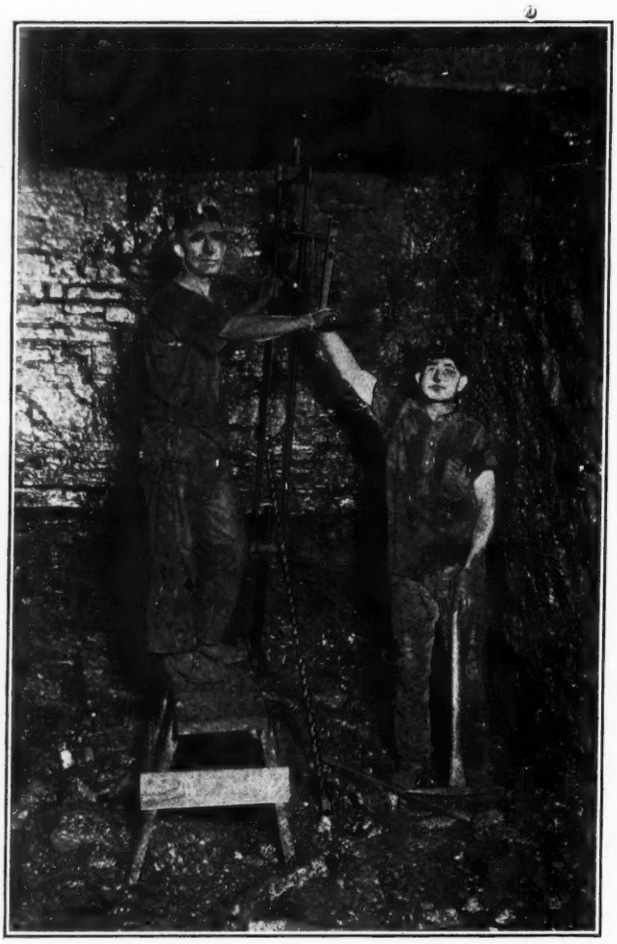


FIG. 4. DRILLING A HOLE AT ZEIGLER MINE

Moines, Iowa, will be used. The Olsen cage is popular in Illinois, and it is significant that it is used at two other plants which are close to the top, not only on record daily production (5508 and 5502 tons in eight hours respectively) but also on yearly tonnage—substantially over a million tons a year, according to the last Illinois coal report. In connection with a change in policy from skip hoisting at mine No. 1 to self-dumping cage at the new operation, Robert Zoller, the general manager of the company, stated that breakage of coal in the use of the skip was not the reason for giving up that method of hoisting—that the breakage was not a serious matter. A self-dumping cage was preferred, as it gave a better opportunity to dock cars for dirt. When one car was dumped into a weigh hopper it was an individual lot of coal; if it was dirty, the man who loaded it was docked. When cars are dumped into a bin, or even when two cars are dumped into a skip direct, then individuality is lost. There is no opportunity in skip hoisting to send a condemned car of coal to the outside, shovel it out on the ground and show the loader the exact state of affairs.

In commenting on opportunity to dock dirty coal in skip hoisting, John A. Garcia, of Allen & Garcia, engineers, Chicago, Ill., states that ideal docking schemes are offered in skip hoisting—that there are two good chances with the skip to one with the cage to detect impurities in coal. First, Mr. Garcia states, cars may be tested at unexpected times so that the men may never know when a test will be made; or secondly, one car of coal at a time can be placed in the skip when the cleanness of the coal is questioned. Then the skip can be dumped at the top and the coal spread out on a wide feeder, where there is a better chance for inspection than in the case of the cage and weigh hopper. This can be done 20 times during the day, and the time consumed will be negligible—there is a world of leeway to do this in a day's run. A further comment was made that in a mine of 5000-tons capacity it would be a physical impossibility to comply with the miner's contract. That the only way in a big-tonnage mine is to watch a car as it dumps, pick off all impurities possible and then go and see the man who loaded the car and discipline him. The writer would suggest that with any system of docking, a foreman could readily go through the working places and notice where rooms or entries failed to have such impurities in the gob. If seam impurities are not in the gob, it would be well to examine cars from such places, for the chances are that the impurities are being sent out with the coal. Rotary dumps and skip hoisting are attracting considerable attention, are being installed in some of the big new plants not only in Illinois but in other sections as well, and the progress of this combination will be watched with considerable interest.

The No. 2 mine will be electrically equipped throughout. At the old mine 26 motors are in use of some of the leading makes—Jeffrey, Westinghouse, Goodman and General Electric; cable and reel gathering locomotives are used here. One lonely mule is kept to haul powder. Each panel includes 28 rooms; units of 14 rooms were decided upon to fit in with machine mining employed at No. 1 mine, 14 loaders being apportioned to each machine. Goodman mining machines are used at this plant, made by the Goodman Manufacturing Co., of Chicago, Ill. Pick men are placed in sections where there is a shale top and long rooms are to be worked.

In Fig. 4 is shown a man drilling a hole for a shot at the face of a room. The mining coal drill used here is the Hardsocg made by the Hardsocg Manufacturing Co., Ottumwa, Iowa. The height of the coal is well brought out and emphasized by the fact of his standing on a bench to reach the drill. If the man standing in the corner of the room is 5⅝ ft. high, the height of the coal might easily be 10 ft. Where electrical apparatus is used in the new plant, it is easily possible that those types which have given satisfaction in the older operation will be favorably considered for the new mine. The management contemplates having

every convenience for facilitating operations. An inspection was made of other plants, and good ideas which have worked out satisfactorily for others will be utilized when they will be an improvement over old methods.

A rescreening plant will be installed at No. 2 which will be a little larger than the one at No. 1. Ordinary Illinois coal preparation will be adopted, and any coal washing will be done by the gravity process—either by the Luhrig or Stewart jigs. Plans for the plant were made by the Link Belt Co., which will put in necessary coal and ash conveyors. Among other mechanical devices for simplifying operations will be stokers for firing boilers. Draft for the boilers will be furnished by a 240-ft. brick stack. All men and material will be handled through the air shaft.

A large amount of grading for the No. 2 mine yard has been done by a Marion dragline steam shovel (Marion Steam Shovel Co., Marion, Ohio) borrowing on both sides of the track to form the fill. An additional machine has just been placed on this job—a Bucyrus dragline machine—made by the Bucyrus Co., of South Milwaukee, Wis. It is the intention to avoid disturbance to the handling of cars by placing the car sidings above the high-water line wherever possible. The ground at the tipple will be filled up to the high-water line. From the tipple the empty tracks will be graded so that cars will run to the tipple by gravity; this will mean a maximum fill of 31 ft. on the siding and 14 ft. at the tipple. This arrangement will leave the lower end of the loaded yard at the high-water line. The tipple foundations will be secured by starting the footings below the fill and concreting through it to a point above the ultimate surface.

The Leiter interests own the coal and most of the surface at the Zeigler plants, and Bell & Zoller operate under lease. The lessor is building a town between mines No. 1 and No. 2 for the accommodation of the employees who will work at the new mine. A feature of some of the big plants in the Franklin field is provision to stock coal at times of insufficient transportation.

There will be no new storage plant at No. 2 mine, as there is an 80,000- to 90,000-ton plant for this purpose at No. 1 mine which will be convenient for use by mine No. 2. Fig. 3 shows a locomotive crane loading coal from this stock pile into the railroad cars at mine No. 1; the top of the tipple can be seen in the background. Bell & Zoller hope to get the new plant in shape by early next winter, but feel doubtful about being able to do so; labor is scarce and it is hard to obtain electrical machinery and supplies.

The officials of this company are: H. E. Bell, president; Robert H. Zoller, general manager. At the mine Joseph Yerley is superintendent; G. C. Breckenridge, mining engineer; Andrew Leslie, top foreman, and Edward Prudent, mine manager.

Coal Age Index

The indexes to *Coal Age* are furnished free to all who ask for them. The index for the first half of 1918 is now ready for distribution, and a copy can be had by addressing a post card to the Subscription Department of *Coal Age*.

Storing Small Coal

By M. Meredith
Liverpool, England

The market for small coal in Great Britain being insufficient to absorb the present supply, which is unusually plentiful on account of the necessity for maintaining the output of large coal for national requirements, collieries in Northumberland, South Wales and other mining centers are having to stock the surplus. Trouble having been experienced with spontaneous heating and firing of the small coal thus stored, a meeting of the North of England Institute of Mining and Mechanical Engineers was held a short time ago to discuss the matter.

John Morrison, who opened the meeting with a paper on the subject, recommended, in the light of his own experience the following preventive measures: (1) Do not make a spread heap more than 12 ft. deep nor a conical heap more than 15 ft. high at the center of the cone. (2) Keep iron temperature rods in the heap at intervals of about 8 yd. and draw them out and through the hand daily to detect heating. (3) Whenever heating is noticed, trench the top of the heap by irregular trenches to a depth of 4 or more ft., for it is usual to find that heating commences at a depth of about 5 ft., and if left alone will spread downward until the coal fires. (4) In addition to trenching, work a long tiff bar or poker into the heap so as to form funnel-shaped orifices at intervals. (5) Rake the whole surface of the heap periodically in order to break up the surface exposed to the weather. (6) Tread the heaps as little as possible. (7) Do not form coal heaps on marshy ground.

In the subsequent discussion several speakers advocated pipes down which a thermometer could be lowered, as preferable to rods, on the ground that the pipes give more certain measurements, and at the same time allow of the escape of heat.

Various additional suggestions were put forward. Professor Knox, of the South Wales School of Mines, recommended that wherever possible the coal should be sized before stocking and that each size should be put in a separate heap; that where it is necessary (on account of lack of space) to store "through" coal or mixed smalls to a greater height than 13 ft., the material should be laid down in succeeding layers of not more than 3 to 4 ft. each; that perforated ventilation pipes 3 to 4 in. in diameter should be inserted, one pipe to every 300 sq.ft. of surface, the lower ends of the pipes being at different heights from the ground throughout the stacks; and that coal should never be stacked behind wooden structures, or on ground covered by coarse vegetation like bracken, and that wet small coal should not be mixed with the dry coal, but dumped around the edges of the stack, where the air could get to it freely.

The treatment recommended by Professor Knox for heaps which have begun to smoke is to sink a series of small "shafts" about 10 ft. deep on the top of the heap, and allow a plentiful supply of water to pass into these and find its way through the heated zone. The shafts should be kept flooded with water until the height of the heap can be reduced to such an extent as to render further heating improbable.

An Innovation in the Coke Industry

By JOHN L. GANS
Connellsville, Penn.

THE entrance of the W. J. Rainey interests into the realm of byproduct-coke manufacture, through becoming joint owner with the Alan Wood Iron and Steel Co. in the construction and operation of a 330-oven plant of the Koppers type at Swedeland, Penn., marks a distinct departure for the beehive-coke producers of the Connellsville region. By the same token it bears record of the fact that the owners of Connellsville coking coal have recognized an opportunity and, after long and mature deliberation, have decided to take advantage of it. No less significant is it as a new trend in the expanding development of the byproduct-coking industry.

With the exception of a few merchant byproduct installations more or less distant from the Connellsville region, the construction and operation of ovens of this type has been limited to iron and steel manufacturing interests which are normally their own consumers. Connellsville operators have been without interest in these enterprises other than as producers of coal which they sold in its raw state in lieu of beehive coke which they formerly sold, and oftentimes to the same customer, as a manufactured product. The joint undertaking, in which the largest independent manufacturer of beehive coke and owner of Connellsville coking coal becomes the partner of a steel manufacturer in the production of byproduct coke, both for the use of the latter and for sale to other merchant furnaces in the Schuylkill and Lehigh valleys, is therefore the first step in a more intimate union of interests between the Connellsville region and the byproduct industry.

Connellsville Produced Byproduct Coal

Ever since the byproduct oven has attained importance as a factor in the manufacture of metallurgical fuel, the Connellsville region has supplied a constantly increasing quantity of raw coal for conversion into coke by the retort process. Until the organization of the Rainey-Wood Coke Co. the relation existing between the operators of the Connellsville region and the operators of byproduct ovens was merely that of seller and buyer. The latter needed a commodity the former was able to produce, but not always in the quantity desired. In the new enterprise the relation has been broadened to include, on behalf of the erstwhile seller of Connellsville coal, the interest of part ownership in the business of making that coal into byproduct coke, thereby constituting an innovation in the industry.

Some years ago, and not many at that, a suggestion that a Connellsville operator enter the byproduct-coking field would have been adjudged as little short of disloyalty by many members of the beehive craft. The reasons therefor were the decidedly unsatisfactory showing made by the pioneer byproduct plants and the generally unfavorable impression made by the results of their operation upon both the makers and users of coke in the United States. The original plants labored under all the difficulties and handicaps incident to the formative stages of all new industrial processes. The quality of their product, which has always been compared with Connellsville beehive coke as the standard, was inferior in size, color, cell structure, burden-bearing and other qualities by which discriminating consumers appraise the value of a coke.

After a thorough investigation into the operation of the early byproduct plants and the existing state of the art, the Connellsville operators became convinced that they had little to fear from competition in the markets hitherto exclusively supplied by them. At the same time they were not able to wholly dispossess themselves of the feeling that the newcomer was an unbidden guest at the metallurgical-fuel banquet table, and might develop a very vigorous appetite. Likewise did they agree that no advantage, and certainly no profit, would arise from the construction of byproduct plants in the Connellsville region, and the abandonment of the beehive oven, even though the latter would soon become antiquated and always had been inefficient and wasteful. They realized that without a consumer of oven gas immediately at hand, which the Connellsville region did not have, byproduct ovens built at the mines would in reality be even more wasteful than beehive ovens, and infinitely more expensive to build. Hence they saw, in the early stages of the byproduct oven's development, little more than a means of augmenting, with a low-grade coke, the fuel supply of a furnace here and there, little dreaming of the possibilities of the newborn industry when stimulated to expansion by a world war.

The Chief Byproduct Was Gas

In the period of its infancy, through which the byproduct oven passed rather slowly, comparatively little effort was made to utilize the byproducts other than gas. In fact, the market for byproducts had not been created. As American engineering genius and skill later brought the byproduct and recovery processes to perfection, and the market for byproducts became wider and more diversified, the beehive operators did not fail to note that the industry began to assume proportions and to take on new phases. When, in 1915 and later, the number of byproduct ovens began to increase so rapidly, and the Connellsville region was brought face to face with the fact that beehive coke was being replaced in many quarters and in large quantities, no little concern began to be manifested as to the ultimate effect upon the manufacture of beehive coke, particularly in the Connellsville region.

Meantime it had been observed, however, that coincident with the increase in the number of byproduct ovens there had been an increased demand for Connellsville coal as the raw material for making byproduct coke. But in that situation, which was beginning to be recognized as presaging a change in the character of the Connellsville region from a producer of coke to a producer of coal, the operators were confronted with freight differentials which placed them at a decided disadvantage with immediately adjacent and competitive coal-producing districts. These differentials were an

inheritance from the fathers of the Connellsville region's principal industry. In their day and generation Connellsville coal was esteemed altogether too valuable to be applied to any other use than the manufacture of beehive coke, and they had persuaded the railroads to penalize the shipment of coal outside the region. Joining for defense in a common cause the independent producers early in 1916 formed the Connellsville Coal Tariff Association, with the removal of the rate discriminations as its immediate purpose and object. After the presentation of what is conceded to be one of the best prepared and most skilfully conducted cases before the rate-regulatory bodies, practically every contention of the association was supported and the whole region was placed upon an equal footing with its neighbors in the matter of freight rates on coal to the byproduct-coke manufacturing centers.

Operators Do Not Oppose Byproduct Coking

Their position being thus strengthened, the Connellsville operators were able to view with more equanimity than before the actual and prospective inroads into their coke trade by their passive and sometimes active byproducts competitors; more so because of the dependence of the latter upon the Connellsville region for a large part of their raw material. While the progress of the war has demanded an output of beehive coke to the limit of the Connellsville region's capacity to produce, as well also of the byproduct plants, the interests of the former have been centering their energies upon the things of the present, but not without some thought and probably some speculation as to the things of the future. The desirability of making an alliance with steel-producing interests in the manufacture of byproduct coke at the point of consumption, to which coal would be shipped from the Connellsville region has, no doubt, been given more or less consideration in the councils of the larger merchant operating companies. Whether or no this has happened, it has been reserved to the W. J. Rainey interests to take the initial step in that direction.

Considered from an economic viewpoint this step is merely an adaptation to the conditions which are developing in consequence of the expansion and growth of the byproduct industry and the transformation that is gradually taking place in the Connellsville region. While there is certain to long remain a demand for beehive coke, and the Connellsville region will retain its preëminence as the producer of it, the region will continue from year to year to undergo a change from a coke-manufacturing to a coal-producing center. The transition will be easily accomplished, the process involving little more than suspending the operation of the beehive ovens and centering plant activities on the mining and shipping of coal to the byproduct plants. This evolution, or revolution as some may term it, has been in progress for some time and cannot be said to have detracted from the importance of the Connellsville region as a fuel-producing center. In fact, without the extensive mine development of the Connellsville region the rapid growth in the byproduct industry would not have been possible, such development having provided an immediately available source and ample supply of coal for the new byproduct plants as they were made ready for operation.

The pig-iron and steel producers who have also become byproduct-coke producers early realized that Connellsville coal sustains the same important relation to the manufacture of a high-grade byproduct coke, rich in byproducts, that it does to the manufacture of a high-grade beehive coke. Through becoming a producer of byproduct coal the region has only changed in character, not in importance, in its relation to the iron and steel industry. This fact insures the continued activity of the Connellsville region as a fuel-producing center and provides opportunity for the beehive-coke producers and owners of coking coal to become interested, as the Rainey estate has done, in the enlarging activities of byproduct-coke production.

Automatic Caging Saves Labor

By W. A. Brown
Bowerston, Ohio

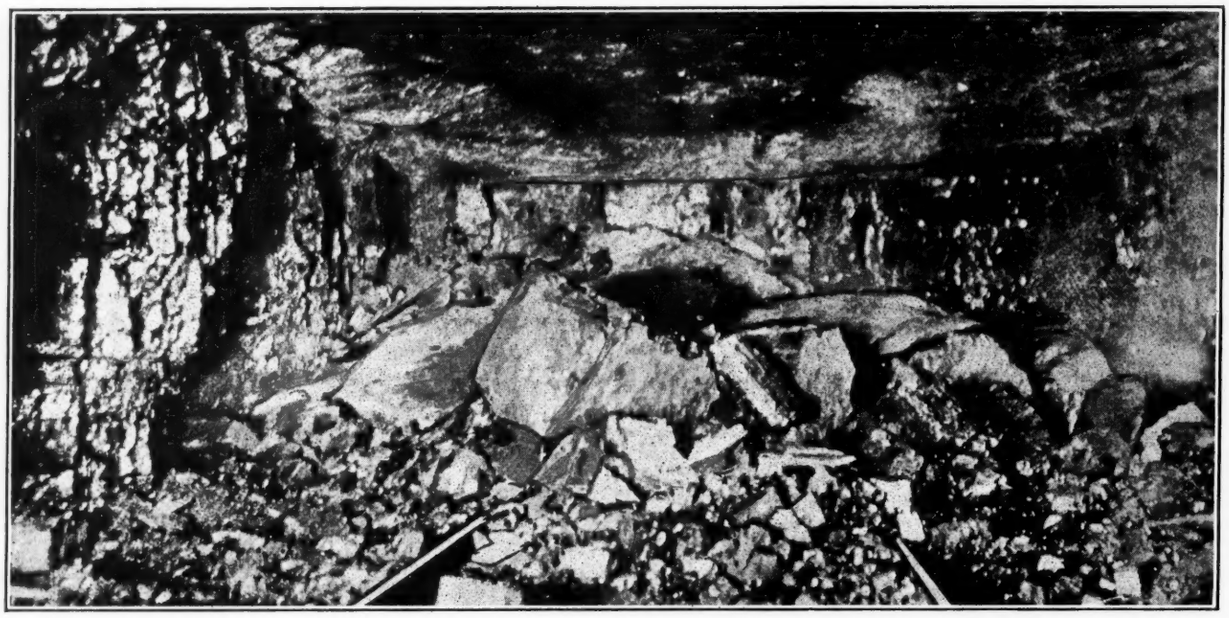
There never was a time in the history of the country when it was so necessary to conserve labor as now. Not only is this necessary at this time, but it will doubtless remain so for many years after the war is over. Our own people have been taken away from our industries, and the source of supply upon which we have always relied—immigration—has been cut short. After the war is over the foreigner, upon whom we have heretofore depended, will doubtless find work in the reconstruction of his own country, while many of our boys who in the natural course of events would enter the industries will never return.

This condition of labor shortage has been anticipated by the producers of the country, who are putting forth every effort to bring about a maximum production with a minimum amount of labor. Every sort of labor-saving device is sought after and brought into use.

In no field are these labor-saving devices more imperative than in mining. Only a few years ago—well within the memory of middle-aged men—undercutting machines were practically unheard of. Today most of the bituminous coal mined is cut by machinery. Mechanical devices are employed in every step in the handling of coal. Today coal is gathered from the rooms and hauled by motive power to the tipple or shaft bottom, as the case may be, where it is caged or fed automatically onto the dump or cage.

The automatic feeding of cars onto a cage or dump is being done with so much promptness, simplicity and with such a saving of labor that one who sees it for the first time is astonished, comparing it, as he must, with the old method where two men, or as was sometimes the case as many as could get around a car, pushed it onto the cage. These men who pushed the cars onto the cage or dump are released for other work where automatic cagers are employed. The transfer of these men is not the only gain, as the cars are fed with a promptness and rapidity not possible with hand feeding.

Knowing that success must follow specialization, the Mining Safety Device Co. centered its efforts for eight years on the automatic handling of cars at the shaft bottom and on tipples. This singleness of purpose has made possible the general satisfaction that its machines are giving.



COAL SHOT DOWN READY TO BE LOADED OUT

Coal, Explosives, War—III

By H. J. BROUGHTON
Wilmington, Del.

SYNOPSIS—*In shooting coal it is important to have as many free faces as possible; consequently, undercutting or side shearing not only aids the explosive but relieves the roof. Shooting from the solid requires more explosive per ton of coal dislodged than does shooting after undercutting, and also shatters the coal more. It is liable to weaken the roof and render it dangerous. The method of priming a charge has much to do with both its safety and effectiveness.*

BLASTING powder is the most economical and satisfactory explosive for most coal blasting unless mine gas or coal dust is present in dangerous quantities. It is strong enough to blast even the hardest coal from "the solid," provided the boreholes are given the correct location, direction and charge; and its velocity of explosion is so comparatively slow that it does not crumble or shatter the coal. To reduce shattering and increase the quantity blasted per pound of powder, soft coal should be undercut. Where this is not practicable, side cutting or "shearing" may be done before the "breaking-in" shot is made.

When shooting from the solid there is only one free side, and as the blasting powder must break the coal on all other sides a larger and therefore more expensive charge is required for the amount of coal blasted. Furthermore, the coal is shattered more than if it had another open face from undercutting. In "slab shooting," and all other shots after the breaking-in shot, the undercut gives three free faces and accordingly reduces shattering and increases the quantity of coal blasted per pound of powder.

Shattering can also be reduced by using course-grain blasting powder, as the large granulations explode more slowly than the small ones. Shattering may also be reduced by means of "air shots." These not only reduce the shattering effect on the coal, but often cause the force of the explosion to spread farther laterally and bring down a larger quantity of coal.

To blast coal successfully and economically the charge must be located in just the proper place, and must consist of exactly the right quantity and granulation of blasting powder. These are governed entirely by the conditions of coal to be blasted by the shot—the number, size and position of bands of slate, "bone," sulphur or clay, the quality and condition of top and bottom, the presence and position of clips and seams, whether the coal is solid, undercut or sheared, whether the work is on the faces or on the butts, whether the coal is hard, medium or soft, the height and width of the face to be shot, etc.

The borehole must be so placed and pointed that it will be no easier for the charge of explosives to break to one free face than to another. This does not necessarily mean that the charge should be the same distance from each free face, because coal may break much more easily in one direction than in another.

When better work will be done by putting the charge all in the back of the hole, drills or augers of large diameter should be used. Under other conditions it is preferable to have the charge spread along more of the boreholes. In such a case a hole of small diameter is necessary, but never so small that the charge comes too close to the mouth of the hole to be properly tamped.

The amount of the charge should be just great enough to crack and break to a maximum distance laterally,

and to each free face simultaneously. When the charge is so located that less force is necessary to break to the mouth of the borehole than to any other free face, the result is a "blow-out" shot. If it is in such a position that there is much less resistance to the undercut or some other free face, the result may be a "windy" shot. Holes are generally from 1 to 2 in. in diameter, and from 3 to 6 ft. deep.

In anthracite mines the hole for the cut or breaking-in shot may be drilled in any part of the breast face. This makes a second free face, and all subsequent shots should leave an irregular breast face, so that each shot may have the benefit of two free faces. In the gangways the depth, position and direction of the boreholes are governed by the quality of the coal and the thickness and pitch of the bed.

When blasting in bituminous mines, and in rooms that are undercut, the hole for the breaking-in shot is generally started a few feet to the right or left of the vertical center, and pointed upward and toward the far side, so that the point of the hole will be about halfway between the two sides or ribs and 2 ft. below the top or some heavy band of slate or sulphur. The holes for the following shots are located so that the points will be somewhat higher than the point of the breaking-in hole, and as far away from it laterally as the force of the powder will carry. Sometimes a hole on each side, fired simultaneously by electricity, will give best results. In many bituminous coal mines two or three shots will bring down the entire chamber face.

Entry blasting in bituminous coal mines must be adapted to the coal conditions, whether the entry is on the face or on the butts. The charge of blasting powder required in coal may fill from 1 to 3 ft. of the borehole.

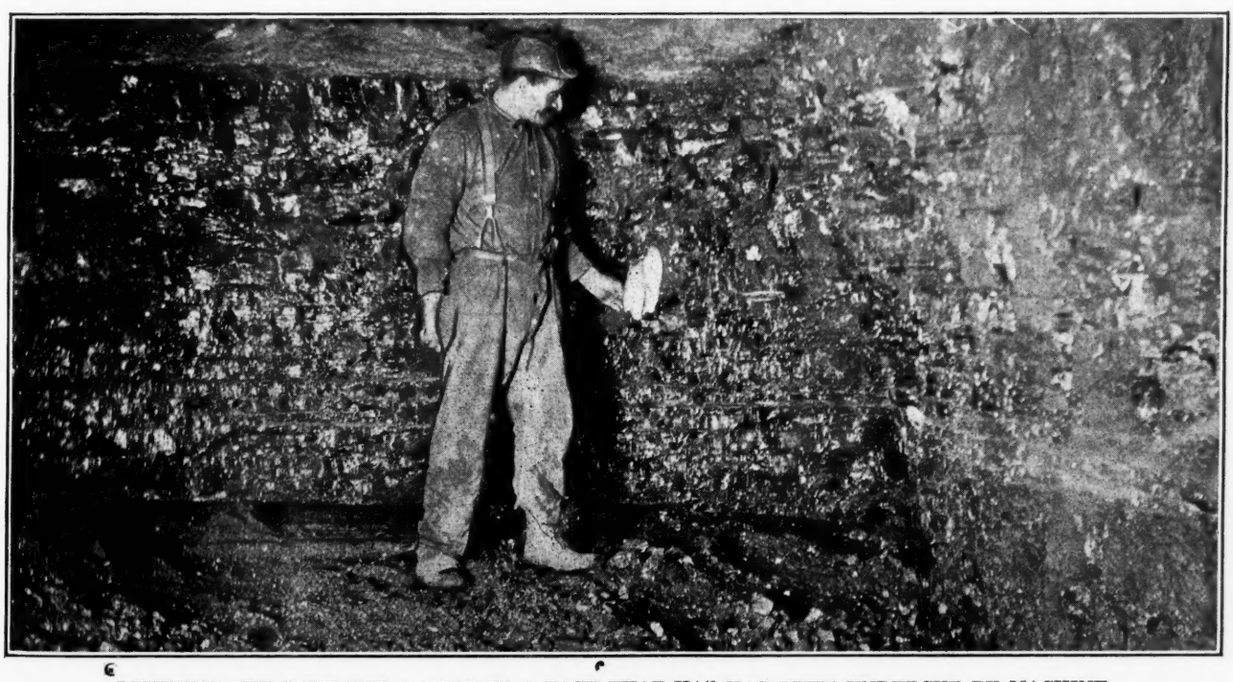
Blasting powder is the principal explosive used for blasting where the rock and earth covering of coal is being removed. In some places, where solid earth with large boulders has to be removed, blasting is done in small horizontal tunnels, known as "gopher holes," driven into the bottom of the face for 20 or 30 ft. These holes are sometimes made 2 ft. in diameter, so that the man digging them can drag himself to the rear and dig a small crosscut for the blasting powder. Others are dug with long-handle shovels and bars, and are but 8 or 10 in. in diameter. Tamping is tightly packed from the charge to the mouth. Charges are exploded electrically with a 40 per cent. dynamite primer.

Ever since blasting powder first came into use, the advantage of igniting the charge in the center has been evident to all, particularly when this charge is distributed for a foot or more along a borehole of comparatively small diameter.

When a charge of blasting powder in a borehole is ignited at one end, it is always possible for some of the coal to fall before the entire charge is exploded, and thus cut off for an instant the remainder of the charge. This is most likely to happen when large charges are ignited at the end nearest the mouth of the borehole. In such a case more or less of the powder at the back of the hole, where the burden is usually the heaviest, does little execution, and a large flame and a great volume of smoke are projected into the working place.

Attempts to ignite the charge at the center are sometimes made by extending the fuse to that point; but this is seldom successful, owing to the fact that most fuses will spit fire from the sides and ignite the charge where the fuse enters it. Even the very best triple tape and gutta-percha fuse will do this occasionally. The expense attached to the use of the highest quality of fuse has caused this method of igniting charges of blasting powder in boreholes to be practically abandoned.

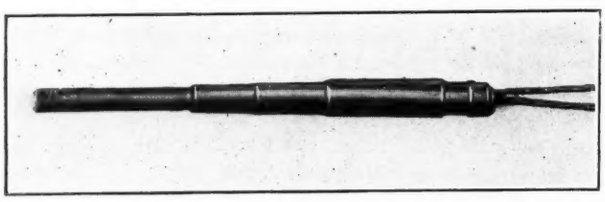
"Miner's squibs," often used for igniting blasting-powder charges in boreholes, are sometimes uncertain in their rate of burning, and may give but little time for the blaster to reach a place of safety after lighting them. This makes it necessary, when a number of shots are ready to be fired, for the blaster to return to



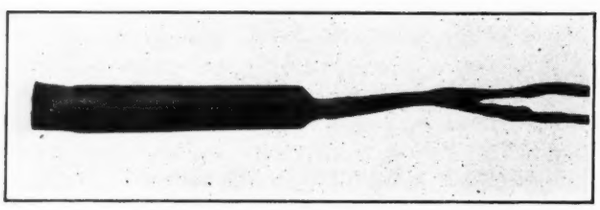
LIGHTING THE FUSE FOR A SHOT IN A FACE THAT HAS HAS BEEN UNDERCUT BY MACHINE

the face several times, causing the loss of valuable time. All of these disadvantages are overcome by the use of the electric squib. These squibs are similar in general appearance to electric blasting caps, but have a heavy paper cap instead of a copper one. The charge in this cap does not detonate like that in electric blasting caps, but merely shoots out a small flame. When electric squibs are used, the charge of blasting powder can be ignited in the center, giving a little quicker and stronger action, and insuring the explosion of the entire charge before any of the surrounding material can fall and cut off a portion of it. The borehole, too, can be tamped solid, leaving no vent for a partial loss of the strength of the powder. When the entire charge is exploded at once, less smoke is given off by the explosive. This, with the elimination of smoke from burning safety fuse, results in purer air, making it possible for both miners and draft animals to do more work.

Other advantages in the use of electric squibs are that when more than one shot is to be fired all the boreholes can be connected in series and fired at the same instant, resulting in a considerable saving in both



DELAY ELECTRIC IGNITER



ELECTRIC SQUIB

powder and time. Shotfirers can thus cover a great deal more ground than when using fuse or miner's squibs.

It is much safer to blast with electric squibs than with fuse or miner's squibs, because shots are not fired until every one, including the blaster, is a safe distance away, and because danger of hangfires is entirely obviated.

In short, the advantages gained by the use of electric squibs may be summed up as follows: More work from a given amount of blasting powder; everybody out of danger before the shots are fired; no waiting—the firing is instantaneous; any number of shots can be fired simultaneously; no fumes from burning safety fuse; a minimum amount of smoke from the blasting powder.

In connecting up electric squibs for firing, the wires, where joined, should be clean and bright. Connections should be made in series in the same manner as those of electric blasting caps.

Electric squibs require the same storage conditions as electric blasting caps, and although they cannot be exploded by shock or concussion like electric blasting caps, they must be handled just as carefully, for their

RESULT OF SHOT IN WEST VIRGINIA COAL

construction is necessarily delicate, and they can be easily broken by rough handling.

Delay electric igniters consist of a copper tube about 3 in. long, into one end of which is inserted and fastened the igniting material, bridge wire and the two wires connected to the bridge wire. Into the other end is crimped a piece of fuse that may vary in length from 2 to 12 in. When it is desired to have a period of delay between the firing of different charges of explosives, this can be accomplished by using an igniter of the shortest length fuse in the charge desired to fire first, the next length fuse in the next hole and so on.

The fuse in the igniters is ignited from the material surrounding the bridge wire, the delay period being brought about from the different lengths of fuse. These igniters can all be connected in the same series and fired by means of one application of the electric current.

When used with blasting powder, it will be necessary to have only the end of the fuse in the charge; for if the entire length of fuse is placed in the blasting powder the latter is apt to be ignited from the side spit of the fuse, and consequently the purpose for which the igniters were used will be defeated.

Delay electric igniters are made with copper wires of any length, but when iron wires are used they are only made either 4 or 8 ft. long. They are dipped all

RESULT OF SHOT IN ALABAMA COAL

over in a waterproof paint. This covers the ends of the fuse as well as the rest of the igniter, and prevents the powder in the fuse from absorbing moisture from the air. The fuse is made ½ in. longer than necessary, so that ½ in. of the end must be cut off before inserting into the blasting cap or the charge of blasting powder.

The importance of using reliable blasting supplies cannot be overestimated. The failure of explosives to perform their functions most effectively is, in many cases, due to defective or weak detonating agencies. In the selection of blasting supplies for firing the explosives, the greatest care should be exercised. The lives of employees should not be imperiled nor property endangered by attempting to fire charges with weak, improperly made detonating apparatus. To be sure of results, reliable blasting supplies should be employed.

Every explosion prevented in a mine through the paying of more attention to technique of operations in blasting probably saves the services of a certain number of men, who instead of being laid up in hospitals, can be more profitably employing their time in trying to improve their methods.

For this work of shotfiring at the mines there must be employed men who have enough patriotism to use every ounce of available energy to produce a maximum

A RIB SHOT

of coal with the least expenditure of time, labor and material. Operators must be made to realize that unpatriotic foreigners will not meet this requirement. Efficiency and competency are the qualities that must be possessed by the worker who is to be counted on to improve the technique of his blasting operations.

With the constant improvement that is going on in the manufacture of explosives there is being brought to the attention of investigators, employed by the manufacturers, easier, simpler and more efficient ways of using explosives in the mining of coal. They make exhaustive tests of the manner of priming, tamping and loading. All this knowledge is compiled in concise form and published by the different manufacturers, who at all times are willing to supply the operators and miners with booklets setting forth the facts.

There are no methods employed by the mine worker which cannot be improved upon if study is given to the subject. The various booklets referred to above contain the meat of the subject with which they deal, so that unnecessary time does not have to be spent in searching through lengthy volumes to gain this knowledge.

Mine operators should see that booklets containing all available information on up-to-date methods of blasting coal are placed in the hands of every man handling explosives. A little thought and study of methods, together with their proper application, will do much to aid in the increased production of the coal so necessary to keep the wheels of industry moving, the homes of our nation warm, as well as to supply almost every needed article for the successful prosecution of the great world war.

Waterproof Plunger Grease

By L. W. Brooks
Jersey City, N. J.

Coal mining, like other industries, is seriously hampered by inability to obtain enough men to get out the great amount of tonnage now in demand. This difficulty will increase with the still larger need for coal next winter. It is a serious problem, and it will not be solved unless drastic action is taken by the authorities.

In times like these every man and every piece of machinery must operate at highest efficiency, and there must be no breakdowns. Machinery is doing its part, but can continue to do so only by careful handling and constant attention. Shutdowns cannot be tolerated.

In the old days machinery did not always receive as good attention as common sense would dictate, especially in such matters as lubrication. Poor lubrication was responsible for most of the repairs and faulty operation. By this is not meant that cheap lubricants were used, but the opinion is held that the proper care was not used in selecting suitable lubricants for each class of service. Cheap oil or grease may be deemed satisfactory in some cases, such as for the machinery in the breakers, but the power house, hoists, cables, mine pumps, etc., require lubricants selected with special reference to the service. Even high-priced lubricants may be a failure if they are not designed to meet the conditions under which they are used.

To illustrate this point, consider reciprocating mine pumps handling dirty water. Grit works into the packings and acts as an abrasive on the plungers, scoring them badly. It also cuts out the packings, so that they are an endless source of trouble. Packings cost money, and it takes time to replace them. Neither common black oil nor high-grade cylinder oil will stop the excessive wear, because neither has the necessary characteristics. The problem is not solved merely by buying more expensive lubricant.

The first consideration, therefore, is the fitness of the lubricant for the purpose; the price is secondary. Study each machine separately. In the case of mine-pump plungers the lubricant should be waterproofed so it will not wash off. It must be adhesive so the packing will not wipe it off and a man be kept busy applying it. Such a necessity wastes grease and time too. It must be of heavy body in order to maintain a film that protects the plunger from the cutting action of grit. It should contain flake graphite to counteract the effect of grit and add weeks to the life of the packing. Such a lubricant is cheap at any price.

In a similar way the kind of lubricant most suitable for wire cables, for car wheels, for haulage locomotives, for pneumatic tools, etc., may be determined.

Mine Accidents

By F. G. JARRETT
Anchorage, Alaska

SYNOPSIS—*Much has been done to increase the safety of mining on paper, but possibly decidedly less underground. This is believed to be due to the faulty, or at least in some respects objectionable, manner in which the tenure of office of mine inspector is determined. Is there not a better method of selecting and retaining mine inspectors than by election?*

THE readers of *Coal Age* and mining men in general have for many years discussed and written articles pertaining to firebosses, safety and mining inspections. Some of these articles have been along intelligent lines, opening a vital subject, which I am sorry to say was closed before being properly cleansed, as it were, leaving us in practically the same position as heretofore.

In addition to all our well-directed efforts, we are being deluged with "safety-first" signs, which are plastered in and around the mines in every conspicuous place. We point with pride to the wonderful strides made with the first-aid and mine-rescue teams, to the advancement made through education, together with dozens of new laws and inventions. But, can we point with pride to the death and accident statistics?

Men are still being killed and maimed, by falls of rock or coal, due, in many instances, to negligence on the part of the miner, to unsystematic timbering, or to the inspection department. With all our knowledge of mine gases, and our boasts of mine ventilation, blue-scarred faces, shrivelled ears and hands are still in evidence. Explosions still claim their toll.

We are confronted with that pertinent question, What's the matter? Are we in a rut? In other words, does all our mining experience, which has been indeed dearly acquired, stand for naught?

Present System Has Many Shortcomings

The old adage of prevention versus cure is surely applicable here. Owing to the fact that the fireboss, foreman and inspectors are always involved in accident cases, the logical solution to my mind hinges on and around the inspection end of the business. But can we justly blame anyone? The fireboss has to be a jack-of-all-trades. If a success, he is called a "hustler." The foreman gets and holds his job through his practical knowledge of mining and his ability to "make good" at getting the coal out. In large mines it is impossible for him to visit each working place every day. The inspector comes about once each month. He has to be firm and fearless and pray hard every election.

The question arises, Is this system conducive to mine safety? Should an inspector, after many years of practical experience, if he be a capable and fearless man, be ousted with a change in politics? Why not hold strict competitive examinations, pick out the best men, grading them down to the fireboss, and allow them to fill these positions as long as they do their duty?

The fireboss, being essentially a mine inspector, should be classed as such, coming strictly under the jurisdiction of the state mine inspector. He should deal strictly with mine safety, be in a position to enforce the laws in his mine or section of the mine, leaving questions of output to the foreman and his assistants. The fireboss, or rather we will call him a "safety inspector," should be placed under the supervision of the state inspector, to whom he should report and be responsible. With these safety inspectors recognized as a unit of the inspector of mines department, they should be able to show a decrease in the accident rate, at the same time preparing themselves for higher positions. When an opening occurred these safety inspectors should, if qualified, step up and keep going to the top, irrespective of politics and favoritism, which have been pernicious in the past in our inspection departments.

Progress Means the Saving of Life

Progress along these lines should bring its reward by saving lives. It should be a help rather than an impediment to the management, by helping to take a load of worry off the foreman's shoulders.

Due to the large territory assigned to the different state mine inspectors, they are unable to play a very important part in the detail work of mine safety. This, in addition to the fact that the fireboss is often otherwise engaged, places the workmen in the position of being at liberty to exercise their own ideas. We have thousands of miners in our midst who cannot read a safety sign, or a word of English, and consequently know absolutely nothing about gases, safety signs, or why a safety lamp is safe. Miners become so accustomed to danger that unnecessary risks are taken daily for the sake of a few cents or a few minutes. I have taken them myself and have seen hundreds of others do the same. Every miner can cite cases of leaving his timbering until the last moment, or of taking other chances just as foolish.

Higher wages attract unskilled men, who are, on account of shortage of trained miners, often put to work in mines, taking a chance on their own lives as well as becoming a constant menace to every other man in that mine.

I will cite one case, which I handled personally, and although many years have passed the incident is still fresh in my memory. Upon going my rounds in one of the most dusty and gaseous mines in this, or any other country, I entered the last room on a split, which was being worked by two foreigners. My senses warned me as soon as I stepped through the door in the crosscut and into their room that something was wrong. Glancing toward the face a distance of 40 to 50 ft. I could see the shapes of these two miners in the dust working like frenzied fiends, shoveling coal into a car. But what made my heart stop, or rather jump into my mouth, was their safety lamps. In addition to their lamps being on the floor, instead of hanging to a post, the flames of both lamps were nearly to the top.

As will be evident, those lamps were nearly red hot, and little time elapsed before I had them out into the fresh air, leaving these would-be suicides, or rather murderers, to grope their way out in the dark. Sitting down on the side I suddenly felt tired, and years older. Presently the miners came along jabbering apologies. This nearly made me see red, but keeping a strangle hold on my nerves I asked them—Why, etc.? They answered, We load 'ums' car, Mr. Boss, and then 'ioka' see."

This, and other cases which have come under my observation, such as firing shots in bodies of gas, shooting on the solid, working in gas until rendered unconscious, smoking in gaseous mines, mining (undercutting) without sprags, working under bad roof, etc., have convinced me that our safety system is open to a lot of criticism. These weak spots can easily be repaired by a get-together spirit among the mining fraternity which will culminate in not only the saving of dollars, but in reducing the number of cripples, widows and orphans. Negligence and ignorance are our two worst enemies. One man through either of these openings can endanger his own life, and at the same time jeopardize the lives of every other man in the mine.

In conclusion, I will state that one suggestion is worth a dozen find-faults. I have thought the matter over and followed the dictates of duty by giving the idea for publication to be taken at its worth. Whether the subject is open and worthy of discussion, or not, must be decided by others.

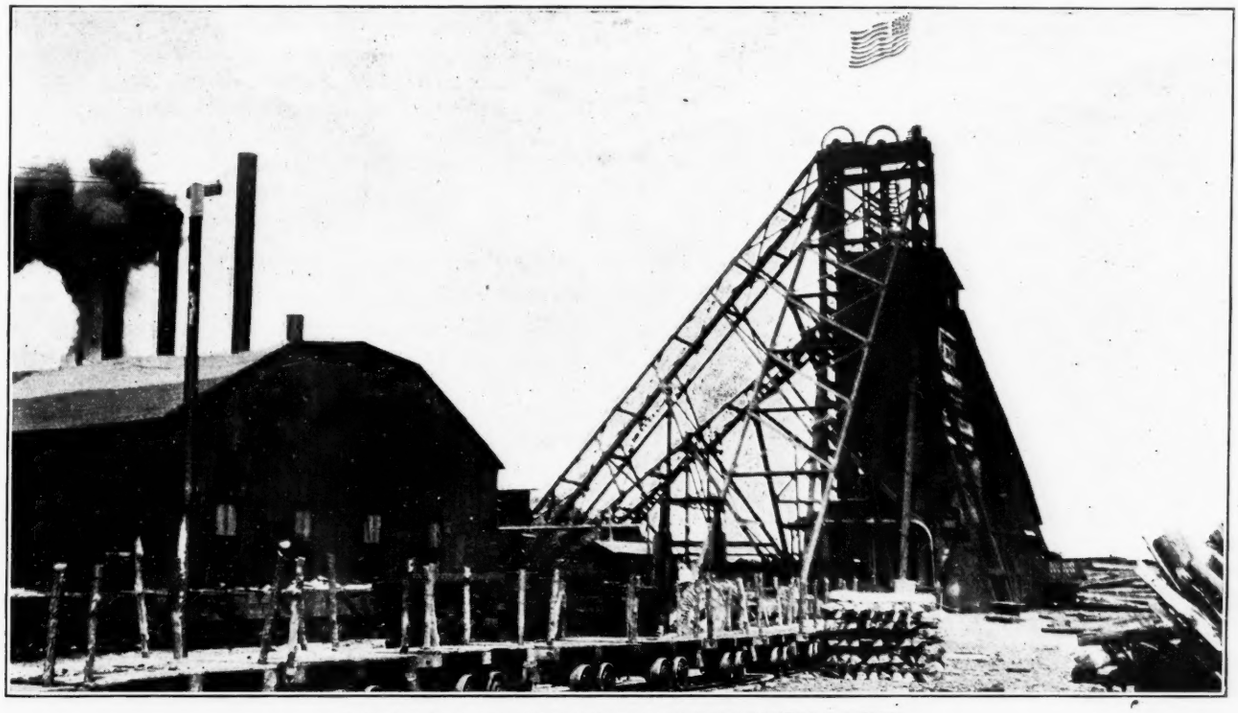
Plant Operates by Storage

The plant of the Security Coal and Mining Co. is about three miles south of Duquoin, Ill., on the Illinois Central R. R. This is one of the mines operated by Rutledge & Taylor, a firm having offices in Chicago and St. Louis. About eight years ago this company bought a wooden tipple in Indiana, moved it to Illinois and installed it at the mine in question, as shown in the accompanying illustration.

While not one of the largest mines in the state, it made a good showing for the year ended June 30, 1917, when it produced 550,261 tons of coal. Of this amount, 20,932 tons were used at the mine, or about 4 per cent. of the total production of the plant. This seems like quite a modest demand on the resources of the company compared with the requirements of most Pennsylvania anthracite mines, which often use 10 to 11 per cent. of production for power purposes at the plant.

The Security mine worked 179 days during the year 1916-17. The coal here is entirely machine mined, 12 mining machines doing the undercutting. The coal is hauled to the shaft by 17 motors, while 35 mules assist in gathering from face to main partings. During last fall transportation reached such a state of inefficiency that the men at this mine were only working from two to three days a week. Finally, the company purchased the necessary equipment and arranged to dump coal in a field adjoining the plant.

A storage bank was started last fall close to the Security mine. This was added to until about Feb. 1. When the railroad did not furnish cars, run-of-mine coal was run through the tipple and loaded into side-dump cars of 20-ton capacity, by means of which the coal was dumped out on the ground for storage. On Feb. 1 there were some 90,000 tons of coal in the bank. About the middle of April the Illinois Central R. R., having acquired the stocked coal, began to load it into railroad cars. A siding was laid along the bank and coal was loaded into railroad cars with a steam shovel. On one special occasion, 35 flats were loaded in this way in one day. This plan not only enabled the company to hoist more regularly, but after the storage bank was instituted the men worked three to four days a week.



TIPPLE AND POWER PLANT AT THE SECURITY MINE

Handling Mine Water

By HENRY E. COLE
Pittsburgh, Penn.

SYNOPSIS—*The work that a pump must perform, the character of the water to be handled, the ultimate position in which the machine will be placed, its efficiency and service—all must be considered before a pump is purchased. Frequently, in times of emergency, various makeshifts may be resorted to to keep the mines in operation.*

AMONG the big problems of the coal-mine operator in securing maximum production is the successful handling of the mine water. The quantity of water to be moved varies according to the general locality; the depth of the coal; the character of the overlying and underlying strata; the area of the water shed; the season of the year and the amount of rainfall. In some mines little water is encountered, while in others 20 or more tons of water must be taken out for every ton of coal.

In this article I will not try to deal more or less exhaustively with this subject, but mention chiefly some things which result from study and experience, and hope that the matter presented can be used with good results.

Since the water problem is of such importance, the proper selection of pumping equipment is imperative and the following points should be taken into consideration: Work to be done; character of water; ultimate position of pump; efficiency; service.

By work to be done is meant the use to which the pump will be put. This will be either unwatering the mine, gathering from the face of the coal or from local dips, or main pumping—that is, taking water from a central basin or sump and discharging it outside of the mine. The number of gallons per minute and total head are also considered under this heading.

The character of the water must be considered in order to secure a pump which will last a reasonable length of time. If highly acidulous water must be handled, an effective acid-resisting metal or iron properly protected should be considered. If water contains sand or gravel in suspension, rapid wear on the parts exposed to high velocities will result. Often pumps are installed which are made of anti-acid metal to protect against acid waters, but this metal is so quickly worn away by the solids in suspension as to make the extra cost unwise.

A possible change of location should be carefully considered in the purchase of any pump. That is, will the pump be moved so that the length of the suction or discharge pipe will be changed or the total head be increased or diminished? How will the power available be affected? Will the same electric or water lines be used for other apparatus, and with what result?

Efficiency should always be taken into consideration, but should not be the deciding factor. This point should be carefully considered in large units and also with pumps that are to operate continuously. As some pumps are efficient when first installed, but rapidly lose their efficiency with increased wear, this point should be taken into account. Few pumps are efficient on heads of less than 10 ft. Piston pumps will show good results up to 100 or 125 ft. Centrifugal pumps vary according to design, size and service. Low head centrifugal pumps and those of small capacity will seldom show more than 40 per cent. efficiency, while many larger machines

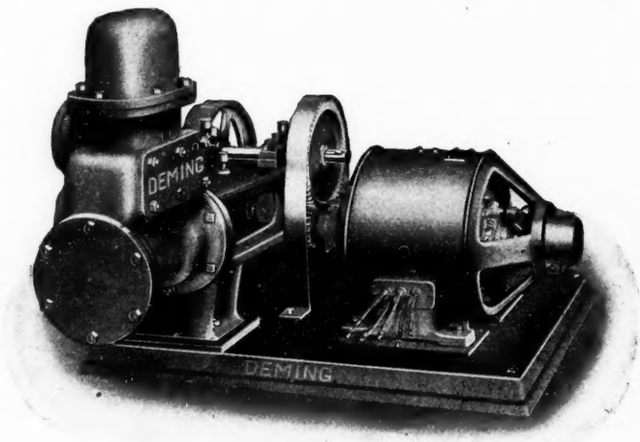


FIG. 1. A TYPICAL GATHERING PUMP

working on heads from 75 ft. and higher will show efficiencies of from 65 to 80 per cent. Plunger pumps for high heads and large capacities often show efficiencies of 85 to 90 per cent., although an assumption of 70 to 75 per cent. is safer in calculating the power required.

Service should also be given careful consideration. Will the pump selected operate satisfactorily with a minimum of attention? Are all parts easily accessible for adjustment or renewal? Can the company furnishing the pump make quick shipment of repair parts from stock, or will they have to be made up? What are the transportation facilities for new parts with least possible delay?

By gathering pumps are meant machines that take the water from the face of entries or rooms or from local dips and deliver to a central sump or basin. Pumps for this service are often used to discharge water entirely clear of the mine. As a rule piston pumps are best adapted for this work because they are light in weight, moderate in price, seldom require priming and will handle a certain percentage of air or small particles of solids. The Deming Ajax pump shown in Fig. 1 is a typical electric motor-driven gathering pump.

Small plunger pumps will often render good service where the water is bad and where the discharge pressure is high. Pumps with only a small amount of clearance will do better work where much air is taken in with the water. Centrifugal pumps are often used for this work but must be primed before starting and usually quit pumping when any air gets into the casing. They

will easily pass small solids, however, because of absence of valves of any kind.

Fig. 2 shows a typical plunger pump for gathering or use as a main pump. It is shipped with frames slotted for wheels and axles to make it portable.

To the main mine pumps much attention should be given. If the operation is extensive, requiring a number of large units, a reputable engineer should be consulted and all points mentioned above carefully considered. In general it may be said that for heads of 100 ft. or less, piston pumps usually show good results. For high heads outside packed plunger pumps should be given careful consideration. When the water is highly acidulous and the quantity small, pumps with anti-acid bronze water ends usually meet the conditions; but if the capacity is great and the pressure high, wood-lined plunger pumps will usually give best results in the long run.

On moderate heads where large capacities must be handled the centrifugal pump properly fitted and adapted to conditions will usually give splendid results. This type of pump is also usually cheapest per hundred-gallon capacity of any type of electrically driven machine.

Compressed air is frequently used for mine pumping. In some cases it is employed in a displacement pump designed for steam. This, however, is highly inefficient and not recommended. Air is often used in an air lift. In this case a pocket is drilled about 120 per cent. below the water level to give the air lift the necessary submergence. In such cases large capacities are obtained with efficiencies varying from 15 to 40 per cent.

The term "head" is often much misunderstood, but is nevertheless important, for it represents the equivalent in vertical elevation of several existing factors. For example, 100 gal. of water is to be elevated each minute 100 ft. through a given size of pipe. The static or still-water head is 100 ft. If the water has to pass through a 2-in. pipe it offers resistance equivalent to a column of water about 25 ft. high; therefore, the friction head

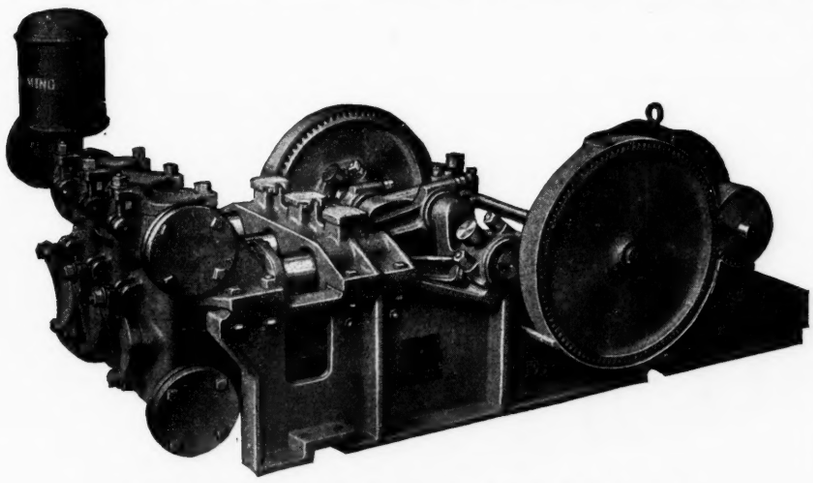


FIG. 2. TRIPLEX GATHERING OR MAIN STATION PUMP

would be 25 ft. Since the water must flow at the rate of about 10 ft. per second, and as this water must be accelerated from a state of rest to this high speed, we have an additional velocity head of nearly 2 ft., making a total head above the pump of 127 ft. To this must also be added the suction lift and the friction head in the suction line. Except in the case of large low-lift centrifugal pumps, the velocity head is usually so small as to be neglected, leaving only the static or actual difference in elevation and friction in pipe. It should be remembered that 1 lb. pressure represents an equivalent head of 2.31 ft., or 1 ft. elevation of still water exerts a pressure of 0.434 pound.

Great care should be exercised in the selection of suction and discharge pipe for pumping units. It is a great error to install the same size of discharge pipe as the pump is fitted for. All suction and discharge pipe should be figured in each case for the service to be performed. One of the greatest errors in thought is to consider that as a larger pipe carries more weight of water, more power will be required to move it. Such reasoning neglects the fact that the velocity is correspondingly reduced, thus decreasing the friction.

In general it should be remembered that doubling the cross-sectional area of the discharge pipe decreases by one-half the velocity for the same quantity of water and lessens the friction head to one-quarter its former value. Also, doubling the amount of water means four times the friction head. The cross-sectional areas and consequent carrying capacities of pipe vary as the squares of their diameters. Thus a 3-in. pipe will carry 2¼ times as much water as a 2-in. pipe, while a 4-in. will carry 16 times as much as a 2-in. pipe. It will therefore be seen that it is usually economical to select relatively large pipe. It should also be noted that acid waters attack iron and steel much more readily at high velocities than at low ones. This also favors the larger pipe. Where an operator has an overstock of a given size of pipe, but requirements show that a larger pipe should be used, a double line can be laid so that each line will carry one-half of the total amount.

There seems to be a general feeling among pumpers that no air should be allowed to accumulate in an air chamber on a pump discharge. This is a grave error. Few types of pumps will deliver a uniform flow at the pump, and wherever the flow is not steady there will be a wide variation in pressure on the line, a consequent stress on all parts of the pump and a loss in power in operation. These may be small in some cases or result in great damage in others. Stripping of gears and breaking of connecting-rods and shafts often arise from this cause. A small petcock placed in the suction line of a piston or plunger pump and opened as often as necessary will generally supply the needed air which gradually gets away from the air chamber. If the discharge line is long an extra air chamber made up of large pipe fittings and placed about halfway to the discharge outlet will be a decided help. Air in an air chamber is to a water line what springs are to a car, or what pneumatic tires are to an automobile.

An operator is frequently called upon to do what seems to be the impossible in order to prevent loss of the mine. It is of course impossible to foresee and advise in an article of this kind for every case, and I therefore suggest only a few emergency makeshifts.

Suppose that the discharge line is so small that the friction head entails a pressure too high for the pump. If the pump is a centrifugal machine, no harm will result. If it is of the piston or plunger type, run a parallel line if possible so as to divide the discharge. If this is impossible, connect a bypass from the discharge back to the suction or waste to the ground and control with a valve. This will reduce the pressure by reducing the amount of friction head.

Suppose that the main pumps break down and only low head pumps are at hand. If centrifugal machines are available, they may be connected in series; that is, the discharge of No. 1 may be connected into the suction of No. 2, so that if each pump is good for only 50 ft. both will be good for 100 ft. If one pump is built to stand a low pressure it should preferably be placed about one-half way from the sump or other source of water supply to the point of discharge. Centrifugal pumps may also be placed in the lines of other types of pumps to help out, as they easily adapt themselves to conditions. Suppose that the discharge head becomes too great for the centrifugal pumps. This may be remedied in a manner similar to that last suggested, but if compressed air is available several small air connections may be made into the discharge line of the centrifugal pump and the inflow of air regulated by a valve in the air line. The result will be to change the density of water in the line, reducing the pressure on the pump nearly one-half; consequently, the pump will discharge against an elevation nearly double that for which it was intended.

The following general suggestions may also be appropriate: Prepare as far as possible for emergencies. Have faith in the traveling representative of the pump house with which you deal. See that pumps purchased are adapted to conditions both present and ultimate. See that total head stated includes all friction head, suction and discharge heads. Don't overstate conditions in buying centrifugal pumps, but name conditions as they exist. As centrifugal pumps must have correct speed, make sure your electric lines are large enough and that the voltage is right. Remember that coal, slate, or other solids may clog up the impeller of a high lift pump so that it may shut off the capacity almost entirely. Use your common sense liberally.

A war-saver is a life-saver.

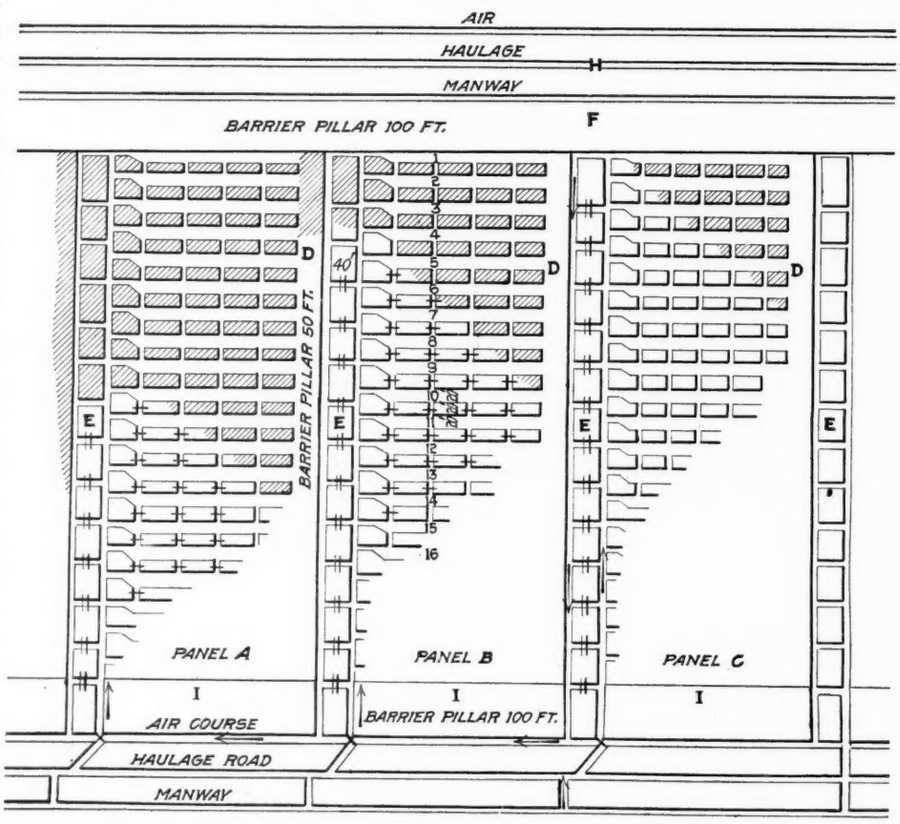
He also serves who stays and saves.

After all, saving is not sacrificing.

Many are giving their lives; you are asked to loan your money. Buy War Savings Stamps.

Standardized System of Mining

The North Western Mining and Exchange Co., at its mines situated near Dubois, Penn., has standardized its system of mining by the adoption of the panel plan of working shown in the accompanying illustration. These panels are 1200 ft. long. The rooms are driven 300 ft. off one entry only. The 50-ft. pillar *D* is left between the ends of the room and the next butt entry *E*. The 100-ft. pillar *F* is left between the ends of the butt entry *E* and the next set of cross-entries *H*.



PANEL SYSTEM OF OPERATION ADOPTED

The 100-ft. pillar *I* is left between the cross-entry and the first room on the butt entry.

The butt entries are driven to their proper length before the rooms are turned off, after which the rooms are driven on the retreating principle. When the second room has been driven up robbing is started on the pillar between rooms Nos. 1 and 2; then, as the next room is driven up, the pillar between rooms Nos. 2 and 3 is drawn, and so on, six pillars being robbed at the same time and six rooms being driven on a butt entry at one time.

Bituminous coal will probably continue to be used under steam boilers but to a lesser extent. In the future its principal use will be in the byproduct plants because of the higher commercial value of the products that can be made from it. The higher the percentage of volatile combustible the higher will be the commercial value of the coal. The time may come when we shall consider anthracite as of minor importance as compared with the high-volatile bituminous.

The Credit of the Coal Man

By J. C. TAYLOR
Louisville, Ky.

SYNOPSIS—*Just at present the coal business, especially the portion of it in charge of distribution, can operate upon a strictly cash basis. Such operation, however, may be unwise, as a refusal of credit may seriously inconvenience a customer and cause him to seek his fuel elsewhere when present abnormal conditions have changed to those more nearly normal.*

ONE of the interesting features of the coal situation today is that of credit. At first glance there may not seem to be any question of moment involved, because the average coal man has no need to extend credit. If one man is not willing to buy coal and pay cash for it another is. Thus for the first time on record the entire coal trade, including mine owners, jobbers and retailers, is in a position to arbitrarily eliminate credit.

It is here that the danger lies. It is this that makes it a feature of the situation. The future standing of the coal trade in the public eye hinges considerably upon how this matter is handled, whether the constituent members of the trade handle it in a manner to acquit themselves creditably, or whether they regard the whole affair as a cold business proposition and proceed to collect the cash regardless of the feeling of customers and the practices that have prevailed heretofore and still prevail in most lines of business.

There are two sides to this question on which endless argument may be produced and many phases and wrangles can be developed and enlarged upon. It all boils down, however, in the final analysis to the point where the coal trade is being put on trial. Will it or will it not so conduct itself as to justify the abuse, the hard feeling and the harsh words that have already been forthcoming to the coal man from the general public?

The Present Opportunity

One way of looking at the matter is this: The coal man has now his opportunity to retaliate for past unkindnesses on the part of the public in classifying him and to allow the public to sweat and pay its bills promptly.

There is another way to look at it, however, a way that presents more appeal and promise, for the future welfare of the relations between the coal man and the public. To point out this way and make a plea for a proper extension of credit on the part of the coal trade is the purpose of this article.

The coal man, collectively speaking, needs to improve his standing in the public eye. It may be no fault of his that he has been the subject of abuse and has been wrongly classified in the public estimation. It is easily apparent, moreover, to one who is familiar with the situation that the fault in this case is more with the public than with the coal man. At the same time, while it may not be the fault of the coal man that he does not command more of the confidence and good will of the public, it is plainly the duty of the coal man to strive for a better understanding and relationship.

There is a question of sentiment involved here, and while some will argue persistently that sentiment is not business, and that business is a cold-blooded proposition, the fact remains that sentiment is and will always be the most dominant factor in business and business relations.

And now for a consideration of the question of credit upon its merits as a purely business proposition. The coal trade, like many other lines of business, has long been afflicted with the evil of too much credit, in which much of the credit was bad. There have been losses of profit in the carrying of long time accounts, and there have been losses of money through extending credits to get trade where credit should never have been extended.

Now, there has come a time and a condition in which the whole slate can be swept clean at one stroke. The credit business for the time being can be entirely eliminated and the trade can swing to the other extreme for a brief period of prosperity.

The important question is, Will this latter procedure pay in the long run?

It is not sufficient answer to this to pass it off by saying it will pay for the time being, and we can let the long run take care of itself.

The Future Is Important

A proper conception of business involves a vision of the future as well as a casting-up for the day. And in the future of the coal business, unless this question of credit is thoughtfully handled and treated in a broad-gaged way, and more liberally than the trade at present seems inclined to treat it, there will be found an invitation to competition which will sooner or later bring disaster to the trade which now seems so well intrenched that it can demand cash or refuse to do business.

It may be good advice, so far as the consumer is concerned, which is handed to the public about borrowing money to buy coal during the summer so as to be provided against the winter's needs, but there is a question if this will be good for the trade in the long run.

The extending of credit is a form of service. This and the carrying of a stock of coal on hand sufficient to supply current needs promptly, constitute an important part of the service which justifies the existence and maintenance in the community of the institution known as a retail coal yard.

It takes some capital to do this. The larger the stock carried and the heavier the credits extended the more capital is involved. This may seem like a hardship, but if it didn't take capital to engage in such a business, if a man could go into the coal trade on a shoestring, financially speaking, it would mean an

open field and so much competition that the business would be neither profitable nor inviting.

So, in a way, the necessity for capital investment is of itself a safeguard against the open field and wider competition. The logical course for the coal man, therefore, is to figure the value of the service he is rendering, including the interest on the capital invested and the credits extended and include in the price of the coal enough to insure a fair return.

It is presumed in all this, however, that the extension of credit is properly made. There is no occasion to argue for the careless extending of credit, nor in this day is there much excuse for it. Practically all the larger towns and cities have credit-rating organizations, and any diligent business man can check up and classify his customers and readily understand in the main who are deserving of credit and who are not. There is always a percentage of the trade put in the C.O.D. class, but these bad risks are entirely aside from the credit proposition in its broad sense.

Now is a good time for the average coal man to do a little thinking along the line of putting himself in the customer's place. And this applies where the coal man is a producer selling to a retailer as well as where he is a jobber or retailer selling to the individual consumer. The jobber or the retailer who is refused credit service by the producer is likely to look back to those days when the producers extended credits from early spring to late fall, and then turn and look forward to the future with a feeling of resentment in which he will conceive the idea of buying his coal from some one else.

It is pretty much the same thing with the domestic consumer to whom the retail dealer has rendered the service of carrying accounts in the past. He will resent the withdrawal of this service and the refusing of credit more bitterly than he will protest against the higher cost of coal. He recognizes the higher price as one of the inevitable results of war conditions, but he will be offended as well as inconvenienced in many instances by the curtailment of service in the refusal of credit.

The coal trade is now going through a boom period to a critical condition in the future, and much of the future welfare of the industry as a whole as well as of the individuals engaged therein will depend upon the conduct of the coal man at the present time in his handling of the question of credits.

The Money Lost Up a Chimney

The accompanying chart has been developed by the Uehling Instrument Co., 71 Broadway, New York. It is of interest and value at the present time when the coal problem is so important, for it enables anyone to quickly and closely estimate the money now being lost up almost any chimney due to low CO_2 content in the products of combustion.

To use the chart simply connect the percentage of CO_2 (shown in column C) with the money now being spent per year for coal (shown in column A), and the intersection of the connecting line with column B immediately gives the dollars passing out of the chimney in the form of heated gases.

Example: If $20,000 is spent per year for coal burned in a furnace whose average CO_2 shows 9.3 per cent., what is the approximate money lost up the chimney per year?

Solution: Connect the $20,000 (column A) with the 9.3 per cent., (column C), as indicated by the dotted line drawn across the chart, and the intersection with column B shows the approximate yearly loss to be $5000.

The object of this chart is to show that a high percentage of CO_2 is highly desirable. To be sure, even

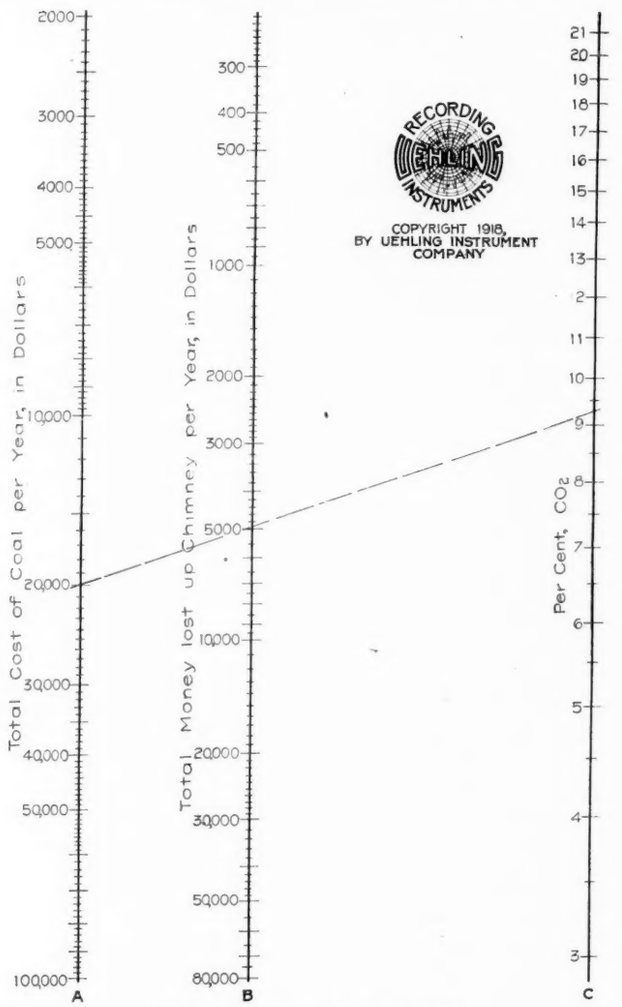


CHART OF CHIMNEY LOSSES

where the CO_2 is as high as 21 per cent., the theoretical maximum there is a loss in the average power plant because the flue gases leaving the boiler have a temperature as high as 500 or 600 deg. F. Loss, therefore, is inevitable unless a blower is used for exhausting the gases and some sort of apparatus installed for either heating the feed water or preheating the air before leading it under the grate.

This chart is based on a flue gas temperature of 600 deg. F. and an outside air temperature of 60 deg. F. Where the flue gas temperature is higher, or the outside air temperature lower, the money loss will be correspondingly increased. On the other hand, with a higher outside air temperature and a lower flue gas temperature, the money loss is proportionately decreased. Further, in the construction of this chart it has been

assumed that the coal has a calorific value of 14,500 B.t.u. per pound of combustible.

It may also be interesting to point out that where there is only 3 per cent. of CO_2 in the flue gases, 76 per cent. of the heat value of the coal passes up the chimney as waste under the conditions outlined above. It is impossible, however, for these gases to contain as low as 2 per cent. of CO_2 because this would show conditions requiring more heat than the original quantity of heat in the coal to heat the enormous surplus of air to a temperature of 600 deg. F.

Minecdotes

"Them Were the Happy Days"

Some fifteen years ago, the writer, then at a rather tender age, became "foresightman" for a surveying corps working chiefly underground in various mines near Wilkes-Barre, Penn. The transitman was an intensely energetic and rather eccentric individual named Gallagher, and known to most of his associates as "Spiker." The latter, although at that time not yet thirty, was almost as bald as the proverbial billiard ball. The years have been kind to Spiker, and in the successful mine superintendent that he has become there is little trace of the raving maniac who made life miserable for yours truly when difficulties arose in the old days.

He certainly was the limit at such times. I can hear him yet, standing with his transit set up on the gangway road, screaming and raging in a voice that used to break into a falsetto screech that was amusing to everyone but myself. "—— —— Harrigan, what *are* you doing? *Are* you doing anything, or must I come up and put that station in myself? How in —— do they expect me to get anything done with such —— —— help?" And so on continuously, for whatever length of time after his backsight was taken it might require for me to get a station point in the high roof of some pitching chamber.

Those were strenuous days, but as I look back at them nowadays lots of amusing incidents come to mind, not a few of which center around the counterattacks of firebosses who were always sent with us as guides and for our protection against possible danger. The firebosses were not directly under authority of the transitman—although expected to help out as much as possible—and without exception they disliked Gallagher for his hard driving, hard swearing ways. As a consequence they seldom failed to take advantage of any opportunity for putting something over on him, and one of the most amusing of these incidents happened in the old Black Diamond mine, on a day when we were being chaperoned, so to speak, by "Andy" Mack.

Andy was a shrewd old scout, and was always ready to take my part when Gallagher lost his temper, or demanded more than was reasonable. "For the love iv God, Gallagher," he'd say, "have ye no heart at all? Shure when ye were foresightin', ye wur so dumb we all had to take turrns doin' yer worrk, and now ye expect more of this lad than tin men could do. Yerr a wurse tyrant than old Naro iver was, a cursing and a swearing like a heathen; and you wit' nothin' but a tin cint cap between yerr bald head and the wrat' of God."

Gallagher had a way of alluding to himself in a more or less jocular manner as the "old man," offering his bald dome as evidence if anyone questioned his right to the title. On such occasions Andy would retort: "Yis, yer bald enough, all right, but it's not wit' age; its wit' rrascality."

On the particular occasion I have in mind, Andy had refused point-blank to attempt the climbing and examining of some pitching places from which the coal had been drawn out, and which stood smooth and bare, on a 35-deg. pitch, 300 ft. from the gangway road to their faces. "They're too steep, Gallagher," he said, "and they're drawn out clean, props an' all. Shure no man cud go up thim without cuttin' hitches. I'll not try it for you nor anywan else."

Gallagher became very sarcastic. "All right, Andy," he said. "All right. Give me the safety lamp then. I'll soon show you whether anyone can climb them or not. The trouble with you is that you're too old for this game and won't admit it," thereby stabbing Andy to the heart, as he well knew.

Andy handed over the safety lamp, and Gallagher, who, to give the devil his due, was game to the core, started climbing up along the rough projections of the rib. For as long as we could watch him he made very fair headway; and I took advantage of the welcome delay to go out along the gangway a few hundred yards to where our dinner buckets had been left. After refreshing myself considerably, I returned to the scene of action to find Andy sitting on the loading platform at the foot of the place Gallagher had started up, rocking and chuckling with glee.

"What's the joke, Andy?" I asked. "Listen," he replied. And I did. From far in the heights above us, a weak and evidently frightened voice was calling "Andy, Andy, Andy." It was Gallagher.

"He's shtuck," chuckled Andy. "He's shtuck, and can get nayther up nor down, and he's calling for Andy to come and get him out of his trouble. We'll lave him there a little while to think it over."

And "lave him there" we did for about fifteen minutes, which must have seemed to Gallagher like fifteen hours. Finally, with an air of great surprise, we answered his calls; secured picks and planks, and got him down safely. His hands were bleeding, and his nerve was completely gone. But he was soon back at his old tricks.

DURING A PERIOD of ten years in England, of a total number of 8683 accidents underground 5014 were due to falls of roof. The longwall system of mining is characterized by less accidents from falls of roof for the following reasons: (1) There is no second working—that is, removal of pillars of coal which hold up the roof. (2) The face is continually advancing and new unbroken roof area being exposed. (3) A gradual settling of the squeeze in rear of the advancing face. (4) Timber does not stand so long as in room and pillar, therefore less liable to decay. (5) The headings are fewer than in room-and-pillar mining.

This Record Would Put Blame Where Due

SYNOPSIS — *The operators in the Clearfield region are asked to keep an all-around record of the efficiency of their operations as producers. A miner, a foreman and a clerk are to form an efficiency committee at each of the larger mines and they will investigate the reasons for idleness and low tonnage.*

WITH the following preamble the Bulletin of the Central Pennsylvania Coal Producers' Association presents the blanks for recording efficiency that are presented below:

"In order to properly install this system it will be necessary to assign at the large collieries three men, a miner, a foreman and a clerk, and at the small units one man, who shall devote his entire time to determine the actual causes for lost tonnage including the causes of absence of employees, and to encourage the men to work full time. These men shall be known as the Efficiency Committee and shall report to the superintendent."

The first 5 columns of the first form which is known as Form M-4 is to be filled in daily by the time clerk. One set of these Forms M-4 are to be used for miners and another set for day men. All miners are to be shown on the daily list while other employees should only be listed if absent. At the close of the day's business the Form M-4 should be turned over to the Efficiency Committee which should, by personal investigation, determine the causes contributing to lost time or tonnage, and these should be entered in columns 6 and 7 of this report.

The second form is a summation of the daily Forms M-4. It is known as Form M-5. All miners are listed and all other employees who have been absent. The third form (M-6) is to be compiled from the payroll and from Form M-5. Sundays, July 4 and Christmas are not to be included as working days. For example line 2 should show 12 days for the semi-monthly period ending July 15, 1918. The following instructions are given:

The total days lost on Form M-5, Column 4, shall be extended on Form M-6, column A, line 4. The total days lost on Form M-5, column 5, shall be entered on Form M-6, column A, line 5. The total days lost on Form M-5, columns 6, 7, 8, shall be entered on Form M-6, column

Daily Record for Each Miner and Absent Employee

of _____
Name of Company

100% Effic._____Tons per day, Pick Mine

100% Effic._____Tons per day, Mach. Mine

Colliery _____ Colliery worked_____hours Date _____191__

Check No. or Name	TIME			Number of Tons Loaded	Reason for Loss of Time	Reason for Loss of Tonage	% Efficiency	Remarks
	Arrived	Departed	Hours Worked					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semi-Monthly Record for Each Miner and Absent Employee

of _____
Name of Company

100% Effic._____Tons per day, Pick Mine

100% Effic._____Tons per day, Mach. Mine

Colliery _____ Complied from Form M-4 _____half of_____191__

No.	NAME	Bad Place	No Hours Lost Due To													Total No. Tons Loaded	% Efficiency
			No Railroad Cars	Sickness	Floods and Fires	No Purchase Power	Breakdown	Intoxication Holidays Etc.	No Rails in Place	No Timber in Place	No Mine Cars	Place Not Cut	Air and Water				
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
	TOTAL NO. HOURS LOST																
	TOTAL NO. DAYS LOST																

A, line 6. The total days lost on Form M-5, column 9, shall be entered on Form 6, column A, line 7. The total days lost on Form M-5, columns, 10, 11, 12, 13 and 14, shall be entered on Form M-6, column A, line 8. Percentages (in column B) shall be determined by dividing the numbers shown on lines 4, 5, 6, 7, 8 and 9 (column A) by number shown on line 3. Line 10 shall be determined by dividing the tonnage shown on line 11 by the difference between the percentage shown on line 9, column B and 100 per cent. Line 11 shall show the tonnage produced, including boiler fuel, during the period covered by report. Line 12, subtract line 11 from line 10. Line 13, divide line 10 by line 3. Column C, lines 4, 5, 6, 7, 8 and 9, shall be determined by multiplying line 10 by each percentage shown in column B.

The fourth report M-7 is to be posted at the colliery. Column 5 shall be determined by subtracting the percentage shown on Form M-6, Column B, line 9 from 100. Column 6 shall be determined by subtracting the percentage shown on Form M-6, column, B line 7 from 100. Column 7 shall be determined by subtracting the percentage shown on Form 6, column B, line 8 from 100.

Semi-Monthly Tonnage and Attendance Record

for _____
Name of Operator

Colliery..... .....half of.....191....

(1) Total Employes on Pay Roll - - - - - - - - - - - - - - .....

(2) Total Number Working Days - - - - - - - - - - - - - - .....

(3) Total Possible days to Work (Multiply 1 by 2) - - - - - - - - - - .....

	(A) Days Lost	(B) %	(C) Tonnage Lost
Loss Due Unavoidable Causes:—			
(4) Railroad Car Shortage - -	.....	.....	.....
(5) By Employes - - - - -	.....	.....	.....
(6) By Company - - - - -	.....	.....	.....
Loss Due to Avoidable Causes:—			
(7) By Employes - - - - -	.....	.....	.....
(8) By Company - - - - -	.....	.....	.....
(9) Total - - - - - - - - -	.....	.....	.....

(10) Full Time Tonnage - - - - - - - - - - - - - - - - .....

(11) Actual Tonnage Produced - - - - - - - - - - - - - - - .....

(12) Tonnage Lost - - - - - - - - - - - - - - - - - .....

(13) Tonnage Produced Per Man Per Day Worked - - - - - - - - - - .....

EFFICIENCY REPORT

for _____
Name of Operator

Colliery _____

for Period ending _____ 1918 Compiled from Form M-6

Semi-monthly period ending or Name of Colliery	NET TONS			Per cent of Efficiency			Tons Produced per man per day
	Colliery Rating	Full Time Tons	Tons Actually Produced	Colliery	Employees	Company	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

DEPARTMENT OF HUMAN INTEREST

"Safety First" As Usual

Operators have somewhat divided opinions about first-aid meets. On the one hand, there is a disposition to oppose them as holiday affairs at this time, when every ton of coal is demanded by the nation at war. On the other hand, many operators feel that it is just as necessary to save life now as at any time, to the end that a large industrial death rate may not be added to the death rate on the field of battle. Saving and economy of material embrace the saving and economy of life, limb and working time, as well as of goods and chattels.

Moreover, companies which had good first-aid teams protecting the lives and limbs of their men have seen these teams dismembered by the war. The young men of whom such teams are composed have been the first to volunteer and the first to be drafted. The work has largely to be done all over again, and the enthusiasm which started the corps in the first place has to be recreated—and will have to be more than recreated; for the men who are to be drawn into the first-aid service now must perforce be those men who failed to answer to the safety-first call when it was first made.

Many also are the operators who look upon service in the first-aid team as a valuable lesson in altruism. The man who trains himself to help his fellow workman is the same man who examines himself and his daily life to find out how he can help his nation in the war. Patriotism and first-aid service go hand in hand. One stimulates the other.

The views of these operators—who will deny that they are right?—will prevail in Somerset County, and a meeting will be held at Sipe's Race Track, near Jenners, on Saturday, Sept. 7. The chairman of the executive committee is Fletcher W. Cunningham, state mine inspector, and the other members of the committee are Samuel Steinbach, of the Consolidation Coal Co.; C. F. Roy, of the MacGregor Coal Co.; M. M. Truax, of the Victor Coal Mining Co., and S. C. Halverson, of the Quemahoning Creek Coal Company.

Teams have already been entered by the companies just mentioned, and by the Brothers Valley Coal Co., of MacDonaldton; the Knickerbocker Smokeless Coal Co., of Hooversville; the Baker-Whiteley Coal Co., of the same place; the Davis Coal and Coke Co., of Boswell; the United Coal Corporation, of Jerome, and the Gibson Coal Co., near the same town. Last year 22 teams entered the field. It seems likely that this year there will be more. If possible, all the judges will be physicians; but as they are difficult to secure, expert first-aid men may have to act in that capacity. The Industrial Department of the Y. M. C. A. is still the backer of this splendid work, and if a team desires to enter application may be made, as in former years, to George B. Landis, the industrial secretary of the Y. M. C. A. at Harrisburg, Pennsylvania.

Work Will Win the War

A meeting held by the Pittsburgh Terminal Railroad and Coal Co.'s mine workers and officials illustrates the meetings being held everywhere to emphasize the truth that "Work Will Win the War." Unless we are ready to back the fighters with our services, the war cannot be won. The meeting in question was held at Bruceton, Penn.

Safety Inspector J. W. Bowles and W. E. Houston arranged a most appetizing out-of-door banquet on the lawn adjoining the Bruceton Hotel. To this dinner all the employees who had completed the first-aid training course in 1918 were invited.

After the repast talks were made on "Safety First" and "Win the War" topics by General Manager F. B. Lincoln; W. G. Duncan, senior inspector of the Associated Companies; Edward Stauffer, Pittsburgh Terminal Railroad & Coal Co., and C. D. Mason, mine safety engineer, and Leader Morey, of Pittsburgh's Four-Minute Men. The speeches were heartily applauded and the men returned confirmed in their determination to mine more and "cleaner" coal than in the past, so as to bring the successful termination of the war a little nearer.

Safety Congress To Precede Bond Issue

At the request of the United States Treasury officials expressed through Dr. Royal Meeker, of the Department of Labor, a director of the National Safety Council, the latter organization has been requested to hold its meeting no later than Sept. 20, so as to leave the safety engineers and others at liberty to boost the Fourth Liberty Loan, the sale of the bonds commencing Sept. 28 and ending on Oct. 19.

Something of this kind has long been anticipated and the date of the safety congress has consequently been in doubt, for the boosters for safety are as keen for the safety of the nation as for the safety of the individual and they desire to be on hand to sell bonds from the time the whistle ushers in the drive till the whistle blows for its close.

The Y. M. C. A. drive, so long postponed and so badly needed to reëstablish the funds of that organization, will follow the Liberty Loan campaign in the end of October. Consequently there is every reason why the business of the safety congress should be advanced to the dates chosen—Sept. 16 to Sept. 20, both dates inclusive. The mining sectional meetings will probably be held on Sept. 18 (Wednesday) and in the morning of Sept. 19 (Thursday). St. Louis is the place chosen for the meeting and a large attendance is expected.

The meeting will furnish an excellent opportunity for comparing notes regarding the plans to float the new Liberty Loan, which is now placed at five billions of dollars, equivalent to $125 per wage earner.

Significant Electric Locomotive Accident

John Reider, a night pumper at the Sykesville shaft of the Cascade Coal and Coke Co., Jefferson County, Pennsylvania, had an accident which illustrates the probable cause of many electric-locomotive accidents. He was engaged in running the locomotive from pump to pump, that being his mode of traveling in performing his duties as pumpman. The motor blew out a fuse, scaring him so that he attempted to jump to safety. Unfortunately his clothing caught in the motor, and he was dragged for some distance before being released. His right leg was broken in three places.

The causes of the accident are possibly two: Loose clothing and inexperience. However, it is a fact that such blowing out of fuses and short circuitings of current do sometimes and perhaps quite frequently scare or stun the locomotive engineer, causing him to leap or be thrown from his seat and fall beneath locomotive or cars. If the accident is not observed and is fatal, no one can explain its occurrence. Every provision possible against such accidents should be provided.

Dangerous To Carry Tools up Ladder

The illustration below, for which we are indebted to "The Anode," published by the Anaconda Copper Mining Co., shows the right and the wrong way of taking tools to one's working place in a heavily pitching seam. If carried up a ladder, the tools foul all the way. The man who tries vainly to hold both the tools and himself finds them slipping from his grasp without his being able to get a new purchase.

This makes him take risks which should never be taken, and, as a result, he loses his hold and falls to the level below, accompanied, or perhaps even followed, by his tools. The result is apt to be fatal. How much better to haul the tools up a boarded chute. In this way not only is the workman protected, but also the persons who may be traveling on the level. The Anaconda Copper Mining Co. provides these chutes at all stopes. The genius of a pick or saw for finding projections in a rise cannot well be exceeded. One makes a long and trying trip if one attempts to carry tools up a ladderway. For this reason chutes should be provided.

ILLUSTRATING BOTH AN UNSAFE AND A WELL-ORDERED WAY OF DELIVERING TOOLS TO THE WORKING FACE

Coal Mining Is War Work

Coal mining is classified by the Department of Labor as "wholly war work." In announcing the policy which would prevail in the control of the recruiting and distribution of unskilled labor for war production, the department defined war work as follows:

1. The manufacture of products or erection of structures directly or indirectly supplied to some department of the Government for use in connection with the war. "Indirectly supplied" includes goods delivered under subcontracts to Government contractors.
2. Coal mining is wholly war work.
3. Railroads and farms are engaged in war work to the extent that under this program they are protected from all recruiting by other industries.

Apportioning Available Coal Supply

A budgeting plan for the apportionment of the available supply of coal which has been under consideration for some time was brought a step nearer realization last week when Dr. Garfield discussed the matter at length with representatives of the Railroad Administration, the War Industries Board and the Shipping Board. It was revealed at the conference that no less than 110,000,000 tons of coal will be required to make and transport the steel necessary to meet the Government's requirements.

No More New Industries for New England

The order prohibiting the establishment of new industries in the East and in New England came too late, in the belief of several officials at the Fuel Administration. Not only must additional industries be kept out of that territory, but it is believed that a portion of those now located there must be shifted to other sections of the country. As it is there are many areas into which it is physically impossible to transport the requirements of coal in addition to handling the finished products and taking care of other essential transportation needs. Outside of these congested districts, the steam-coal situation is not bad. From the Ohio line west there are more screenings than operators know what to do with. The situation in steam sizes is particularly easy. It is believed that many industries could be transferred to the Middle West and to the South where they could be near an adequate coal supply. If this were done, the problem of distributing coal would be simplified considerably and industrial efficiency increased, it is believed.

A Shortage of West Virginia Coal

Demand for high-grade West Virginia coal is outstripping production so decidedly that the situation was the subject of a conference last week between West Virginia operators and J. D. A. Morrow, who is in charge of distribution for the Fuel Administration. Additional coal is needed urgently for Lake shipment, for byproduct use and at tidewater. Various means for stimulating production in West Virginia are under consideration.

Storage Conditions Unequal

Great inequality exists throughout the country as to the amount of coal held in storage by consumers. This is shown by the returns to the Fuel Administration from the recent questionnaires sent to consumers. The storage is to be equalized as much as is possible. There is no idea of taking away any of the coal accumulated by a consumer, provided, of course, it does not amount to hoarding. When a reasonable reserve has been secured, a greater accumulation will not be allowed so that others may be given an opportunity to get their share of coal for storage.

Returns are coming in from the consumers' questionnaire at the average rate. Three-fourths of the consumers in New England already have made returns. A considerable number of large consumers, however, have not responded. It is believed that this is due to the fact that the matter did not come to the attention of the proper official. A little prodding may be necessary, but as a rule, the large concerns are not the ones which delay statistical compilations based on replies to questionnaires. A number of men are on the road examining the veracity of the returns. Every effort will be made to make examples of those making erroneous reports. The complete program which it is hoped will result in the stimulation of coal production is now before the President. Pending his approval, the details of the plan are not available.

Better Prices at Pittsburgh Wagon Mines

The local fuel administration at Pittsburgh, Penn., on July 30 prescribed new prices for the wagon and truck coal mines of that district and certain rules governing the operation of such mines.

First—For coal not moving by rail, a manufacturer or large consumer who makes a blanket contract with a wagon mine for the entire daily output of any one or more of these mines, delivery to take place each day of

the week as the coal is produced, the maximum price shall be $2.45 per net ton, f.o.b. mine platform.

Second—For all coal so purchased in large quantities for public institutions, hospitals, office buildings, large apartments, small manufacturing operations, mercantile establishments, and like institutions, including a supply to retail coal dealers, the maximum price (where not taking the full and complete output of the mine and providing for its continuous operations without interruption) shall be $2.75 per net ton, f.o.b. mine platform.

Third—For those consumers of coal, ordinarily covered by the term "domestic users" and taking only small quantities, and especially any consumers not in the first and second classes above mentioned, the maximum price shall be $3 per net ton, f.o.b. mine platform.

Hauling rates based on the delivery of coal to stock piles, or to the street, or curb, and not including the handling of it in any way, have been fixed as follows:

First mile or part thereof	$0.70
Over 1, up to and including 2	.80
Over 2, up to and including 3	.95
Over 3, up to and including 4	1.15
Over 4, up to and including 5	1.30
Over 5, up to and including 6	1.50
Over 6, up to and including 7	1.85
Over 7, up to and including 8	2.15

The rates arrived at by the administration were determined after many conferences with representative bodies, such as the executive committee of the Pittsburgh Truck Mine Coal Producers' Association, a committee representing those purchasing coal from wagon mines, and a committee representing the manufacturers of trucks.

The prices are to be in effect from Aug. 1 to Nov. 1, and the prices apply to screened coal. The hauling rate is based on the loaded mile. For example, a six-mile round trip from the mine will be charged at the three-mile loaded rate. The prices apply only to clean coal, and should dirty coal be delivered 50 cents less per ton should be charged.

Restrictions on Anthracite from Lake Docks

Anthracite coal may be shipped from Lake docks to the following sections only:

1. The states of North Dakota, South Dakota, Minnesota and Wisconsin.
2. The upper peninsula of the State of Michigan.
3. That portion of the State of Iowa located on the north of a line coincident with the Illinois Central R.R. from Dubuque to Sioux City, Iowa.
4. The following-named counties within the State of Illinois: Cook, Stephenson, Winnebago, Boone, McHenry, Lake, Ogle, Dekalb, Kane, Dupage, Lee, Kendall and Will.

An order to this effect has been issued by the Fuel Administration, which carries into effect the plan formed several months ago to restrict the use of anthracite in distant regions. It also is impossible from a transportation standpoint to provide the East with any other fuel for domestic purposes.

In order to provide a fuel adapted for use in base burner stoves, in the districts from which anthracite has been cut off, regulations and prices have been issued for sized screening.

For all special sizes passing over a mesh over ½ in. in size the mine price for prepared coal is allowed. For special sizes passing over ¼ in. and under ½ in. in size, the mine price for run of mine coal is allowed.

For all fine sizes passing through a mesh ½ in. or smaller, the price fixed is 30c. per net ton less than the prevailing price for standard screenings. If fine screenings or "carbon" passing through ½ in. or smaller mesh as the result of producing special sized screenings are mixed with other coal, the selling price shall not exceed the applicable government price less 30 cents per net ton.

Tests on an Odor Warning

A series of tests with stenches as a warning for miners is being made by the Bureau of Mines. A liquid chemical is injected into the compressed-air line at the engine room. The vapor thus is carried quickly to the farthest opening of the line. About five minutes are required for the warning to be received at a punching machine which is approximately 1800 ft. from the compressor. The odor soon diffuses to all near-by parts of the mine, and is carried along by the ventilating current. The laboratory work in this connection is being done in the gas section under the direction of Lieutenant Katz. The most disagreeable nontoxic odors obtainable are being tried.

Brief Washington Notes

Coke prices in Pike County, Kentucky, have been announced as follows: Blast furnace, $6.50; 72-hour selected foundry, $7.50. The prices do not apply to coke made at the plant of the Marrowbone Mining Co.

A price for modified mine-run has been established in Barton and Vernon Counties, Mo., and in Cherokee and Crawford Counties, Kansas. The price is: Nut-run, or stoker coal, $3.05 per ton; mill coal, $2.95 per ton.

Contracts now may cover a longer period than one year. A ruling to this effect was issued last week by the Fuel Administrator. Any extension beyond one year, however, must be approved specifically by the Fuel Administration. If such approval is granted, contracts may be entered into without a limitation or with a limit in excess of one year.

Bituminous coal production during the week ended July 27 totalled 12,802,000 tons. This is a decrease of 121,000 tons over the week preceding, but is an increase of 13 per cent. over production during the corresponding week of last year. Anthracite shipments increased slightly. Forwardings during the week under review were 40,942 cars.

G. C. Foedisch, of Philadelphia, Allen C. Dodson, of Bethlehem, and Julian B. Huff, of Greensburg, Penn., have been selected by James B. Neale as members of a committee to assist him in the effort he is making to increase coal production.

F. W. Guthrie, president of the United States Coal Corporation of Pittsburgh, set 200,000 tons as the goal of production he wished his men to attain in July. He urged them to "go over the top" for that unprecedented production in the company's mines. Mr. Guthrie has advised James B. Neale, the director of production, that the month's production apparently was 210,000 tons.

THE LABOR SITUATION

EDITED BY R. DAWSON HALL

General Labor Review

The disheartening reduction in bituminous coal output still continues, though the fall in tonnage is less than last year. In the week ending July 20 the output of bituminous coal was 363,000 short tons less than in the week before, and in the week ended July 27 it was 121,000 tons less than in the week ended July 20. The tonnage has declined therefore to a point 484,000 tons a week or 80,000 tons a day below the record week ended July 13.

The car shortage has much to do with this condition, but it must be remembered that if in any section the coal industry is itself to blame and in that same section the railroad industry is blameless it will not serve any good purpose to show the railroad industry to blame elsewhere. It is the hope of our industry to show that the railroad industry is always, everywhere and in all cases, to blame except perhaps in the anthracite region.

As stated, however, the railroads were principally at fault. The car-shortage percentage was 3.9 in the week ended June 20; and it was 5.1 in the week ended June 27. On the other hand the labor shortage including strikes rose only from 4.2 to 4.4 per cent., but with a declining car supply surely it should not have increased at all.

The car shortage increased in Illinois, Indiana, markedly in southern Ohio, in Westmoreland County, Pennsylvania, in central Pennsylvania and in Somerset County of that same state; it increased lamentably in the Fairmont region of West Virginia (from 8.8 to 19.3 per cent.) and in the Cumberland and Piedmont district only less lamentably. The Hazard field in Kentucky received less cars, so did the northeastern and western Kentucky fields. The southern Appalachian area saw its car shortage increase from 7.6 to 16.3 per cent. Southwest Virginia suffered somewhat more than before; so did Kansas and Missouri; Oklahoma and Arkansas and so also did Iowa. Even the Rocky Mountain area had less cars.

Some sections showed a trifling improvement as might be expected. In all, there were four of them. Northern and central Pennsylvania which is grouped as one, western Pennsylvania, the New River and Winding Gulf region, also grouped as one, and the high volatile region of southern West Virginia. The railroads are doing less well than before. It will now pay to store coal, especially slack.

The attitude of Provost Marshal General Enoch H. Crowder is rapidly getting more and more favorable to the giving of miners deferred classification. Perhaps we shall ultimately arrive at the point that we shall not summon men at all to service whom we do not want to serve. We shall not ask them to come to the draft boards to make their excuses. We shall not demand that they give reasons why they should not do what they so much want to do and what we do not want to them to do at all. But Crowder is not making the laws. If he will only continue to advise mine workers to make pleas for exemption and will continue to favor the placing of mine workers on the deferred list no one can file objection to the fact that he does not subvert the civil authority by setting up laws of his own writing and devising.

> *Men of draft age employed in the coal mines will best serve their country by remaining where their experience and skill will assist in maintaining and increasing the production of the fuel with which the munitions and supplies are manufactured, and by which the locomotives and ships are propelled. It is not only the right of such men to continue in their present employment, but it is their patriotic duty to remain at their posts, and local and district boards have been instructed by the provost marshal general to impress this fact upon the men employed in the mines who come before them for registration. It is just as much the duty of such a man to remain at his post in acceptance of the action of his local or district board in placing him in a deferred class as it is for a man in uniform to obey the orders of his commanding officer.—Provost Marshal General Crowder.*

Though James B. Neale, director of production of the Fuel Administration, is not succeeding wholly to the liking of the insistent public he is doing much to maintain and increase tonnage. He has chosen as a production committee: G. C. Foedisch of Philadelphia, Alan C. Dodson, of Bethlehem, Penn., and Julian B. Huff of Greensburg. He is endeavoring to induce the mine workers to give up their holidays, fairs, picnics and other festivities. It is pleasing to note how successful has been his work in this direction.

Barnesboro, Penn., is a near neighbor to Spangler whose renunciation *Coal Age* recorded the week before last on page 180 when Spangler gave up the Firemen's Convention. At this town of Barnesboro an annual picnic was to be given by the Northern Cambria Scottish Club. A protest from James B. Neale brought about a cancellation of the event. The Scots remained loyal to the spirit for which America went to war, and there are other like abstentions from merriment, all on behalf of that great cause in the support of which our mine workers are engaged almost more importantly than any other civil workers.

In the Somerset county region the mine workers have greatly figured on the Meyersdale meet of the Western Pennsylvania Firemen's Association, Aug. 12-18. The people at Meyersdale and the vicinity want the event held as scheduled and to this end S. A. Kendall left for Washington to assure the Washington authorities that the mine workers had been working overtime that they might earn the right to attend, that they would put out 100 per cent. production while the fair was in progress and would try to induce all the miners of the region to sign formal pledges binding them to do their utmost to produce a maximum tonnage. But what sort of maximum tonnage is it that is produced by men who go fairing when the mines should be working?

In Alabama, where formerly slackness ruled, the mine workers are doing admirably. In Walker and Winston counties in the Warrior River Basin, they are beginning to give 49 hours to their work, working 9 hours for the first 5 days and 4 hours on Saturday. What is more the quality of the coal is much improved.

The temperance question, as always, is one of the most important of all questions and one of the most dangerous to approach. Seward E. Button, chief of the Department of Mines has succeeded in drawing the fire of the union by his remarks on the intemperance of miners. He does not appear to have said anything amiss. Doubtless someone in authority needed to say what he has said. "It must needs be that offenses come, but woe unto him by whom the offense cometh," and the name of that man is Button. His statement will do a great deal of good—but not to him.

Frank J. Hayes has attacked him somewhat childishly. Some miners certainly do drink to excess. No one can deny it, and if there were only one miner who so drank

the tonnage would be reduced. President Hayes is reported to have said that he could prove by figures provided by prohibition statisticians that less beer is consumed at present in the coal-region towns than at any time within the past quarter century. If that is true, then it only shows a reduction in intemperance, not its abolition.

President Hayes also declared that the statement of Chief Button that anthracite production had been reduced through intemperate habits of miners was the basest and most deliberate insult he had ever heard as coming from a state official. He pointed to the fact that with 35,000 men less in the anthracite field than during the same period 16 months ago, production had been increased.

All this is extremely interesting, but if the tonnage is to be maintained and increased the intemperate men must all be made to mend their way. It is of no use to try to clear the reputation of the industry as a whole; it is of no use to try to show that the ship workers are more intemperate. The question is, are there or are there not men in the industry who lose time owing to drunkenness?

Few or Many, Those There Are Reduce Tonnage

If some of the Lehigh Valley Coal Co.'s men had been alleged not to have done their duty in the purchase of Liberty Bonds would it have been an answer to show how much the generality had done? The mine workers of the Lehigh Valley Coal Co. evidently thought not, for they made every man take out his bond. If they would only duck the men who booze so much that they cannot, or do not care to, work and do it just as thoroughly and industriously as they ducked those who would not buy bonds the mines would be full and the saloons deserted. We commend this thought to them.

The way to honor is not by making protests and threats against the useful gossip but by reformation. Let the miners compel the booze slackers to be temperate, and there will be an end of criticism. Then if Seward E. Button and his inspectors permit bad air and unsafe conditions, as Messrs. Hayes, Matthews and the board of District No. 9 assert, there will be a good opportunity to push the case against them.

On Aug. 2 the director of production announced his plan for a production manager in each producing district and at each mine a committee of six—three representing the mine workers and three the operators. These committees will be selected for the purpose of stimulating patriotism and arranging for local meetings at which the need for increased production will be brought home to the men.

Draft Board Assaulted for Active Exemption

The Schuylkill County miners in the anthracite region are angry with the district draft board at Shenandoah for trying to force exemption on them. A number appeared on July 22 ready to go to Camp Lee. These men refused to accept exemption and one of them knocked down Chairman Ditchey when he insisted, while another upset a policeman who tried to prevent him boarding the train. Others climbed through the car windows while still others left in automobiles for Mahanoy Plane, where they caught and boarded the train.

It has been decided, it is said, that the "coal and iron" police who guard the mines against fire, theft and pro-German violence come under the rule "Work or Fight." Many of the patrolmen are ex-regular army men and almost all are within the draft age. The coal operators of the Lehigh field are instituting an inquiry to see if these highly-essential men are, by a mere technicality, to be compelled to enter other employment.

It is said that at one of the Lehigh Valley Coal Co.'s operations the men have refused to work with any man accepting exemption. Coal company officials at Shamokin, Penn., went before the board and made an appeal to t e patriotism of the board members, declaring that their failure to hold back the mine employees would seriously impair coal production at the local collieries. At a meeting of the selective-service men the board put the issue squarely up t the men themselves, declaring a willingness to exempt all those who chose to stay at their employment in the mines or who felt that they were actually needed. Not one of the 15 coal mine workers who were drafted elected to continue at their mining work and the board accordingly certified them into the service.

The breaker boys of the Pond Creek colliery of the East Point Coal Co. struck Aug. 1 for more pay, and the carpenters and outside laborers took their places at the pickers and chutes and kept up the production.

The mine workers of the Ninth District, which includes Shamokin, Lykens, Pottsville and the Panther Valley, have been threatening to demand a 100 per cent. increase in wage and the check-off, with the wage increase to date from Apr. 7 of this year. They also say that this advance can be given without an increase in the price of coal. This would involve paying back wages to the extent of $3,000,000 up to Aug. 1. It is a most preposterous demand, of course, and could not be made by men with any knowledge of conditions or any good judgment.

Secretary of War Newton D. Baker has shown his appreciation of the 150 mine workers in Mercer County who have returned to work in their declining years after having retired from the mines. Mr. Baker in his letter to H. A. Garfield says: "This is the spirit which free and liberal government always engenders and which insures the triumphs of our arms and aims. I should like, through you, to send a personal greeting to these heroes of the pick."

English Little Spoken in Central Pennsylvania

In the central Pennsylvania field it has been ascertained for the Fuel Administration that 29,000 men speak English, 10,200 Italian, 10,000 Slavish, 7500 Polish, 4000 Magyar, 2100 Russian and 7000 various other languages.

In Illinois Frank Farrington, the president of the union in that state, has strongly condemned the bonus system. He says that "trouble is brewing in the mine fields, and selfish mine owners and operators, and not the miners, are stirring it up." Some operators are trying to induce the men to change their working places in return for premium payments of various kinds.

In Ohio, 30 hoisting engineers employed by the Ohio Collieries Co. in Athens County struck on July 25. Governor Cox opened negotiations with them and on July 26 they went back to work, the wage question to be submitted to the Labor Board of the Fuel Administration at Washington. Thus 1000 mine workers producing about 4000 tons per day were enabled to go to work.

Strike Against Paying Uncle Sam a Penny a Day

In the Saginaw (Mich.) field nine mines were idle on July 23, despite orders directing them to return, one from the Federal Fuel Administrator and one from the mine district board. Some men appeared at the railway stations ready to go to work; some merely appeared as spectators; others came to keep the men from going to work. The upshot was that the "miners' train" was emptied and no work was done. The miners want 10c. a ton increase. They have never been satisfied with the so-called Washington agreement. The 10 per cent. increase in the commutation fare has made the miners still more insistent, though it is an insignificant trifle per day and it is still less as figured per ton mined. The five largest mines in Bay County were idle on July 23. Here the rise in the commutation fare deprives them of 1c. per day. These hard-fisted slackers cannot stand to pay this cent per day to the United States Government, but they are ready to vote millions and billions per annum from the pockets of their employers.

James Lord, president of the mining department of the American Federation of Labor, has been appointed head of a special section of the Federal Employment Service in charge of recruiting and supplying labor for mines. He will coöperate with the Fuel Administration, the National Coal Association and the United Mine Workers of America.

The domestic coal mines of the North Alberta district, Canada, have been running slow for some time and on Wednesday, July 24, the Bush mine near Edmonton was shut down and again on July 26. The Humberstone mine which has been producing 550 to 600 tons a day out of a total capacity of 1000 tons shut down for a week owing to shortage of orders.

Selective Service Act Not To Blame

The statistics gathered by Provost Marshal General Crowder are regarded as proving that the scarcity of mine workers in the coal-producing districts is not attributable to the selective-service law. Slightly more than 2 per cent. of the total number of coal miners in the United States have been inducted into military service.

General Crowder's figures show that there are 706,012 coal-mine operatives in the United States. Of this number only 177,502 are subject in any way to the selective-service law. This is approximately 25 per cent. of the entire number of coal-mine workers. Of this latter number, however, 130,749 or 73 per cent. already are in a deferred class. Only 6.5 per cent. of the coal workers of the country are in Class 1. The total number of coal miners in Class 1 is 46,253, or 26 per cent. of the men subject to the draft. From investigations which have been conducted by the provost marshal general and by the coal-mine operators themselves, it is said to be evident that it is the higher wage obtainable in other industries which has caused the exodus from the mines.

The draft machinery is said to be functioning perfectly. The local boards in the coal-mining regions have been liberal in the granting of deferred classification to miners. A condition, however, which cannot be met by the provost marshal general is the refusal of many miners to accept deferred classification. When put in a deferred class, many of the coal miners quit their jobs.

"Have Got to Get Where I Can Kill a German"

It was evident in many coal-mining districts, according to reports reaching General Crowder's office, that the men have not been convinced that they are striking more powerfully at Germany by staying in the mines than by getting on the firing line. "I have got to get where I can kill a German," or something to that effect, is a remark frequently heard when coal miners are urged to accept deferred classification.

General Crowder and his staff cannot well be expected to make a law of their own. All they can do is to administer the law as provided. General Crowder cannot undertake to educate the mine workers of the country to the point where they will realize that it is their duty to the country to continue in their regular line of work. This, it is believed, should be undertaken by the coal-mine operators and by the leaders among the men.

Miners Always Have Been First in the Fight

General Crowder himself called the attention of the correspondent of *Coal Age* to the military record of the coal-producing districts in the Civil and the Spanish-American wars. The spirit of the populace in these districts, he said, is such as to make it extremely difficult to interest the men in duties away from the front-line trenches. The task of persuading these men to continue their peacetime pursuits with the Huns shedding American blood is one which General Crowder feels must devolve upon someone else. He is anxious that Class 1 be cleared of the few bona fide coal miners, who are thus classified, but he thinks someone else should undertake to persuade the miners to accept the deferred classification which he is ready to give them.

The effect of the draft on the coal mining industry was discussed last week at a conference between James B. Neale, the director of production, and representatives of a number of producing districts.

The conference was addressed by Col. Roscoe Conklin of the provost marshal general's staff, who explained the attitude of the United States Government in regard to the drafting of coal-mine workers.

It was stated by those familiar with labor conditions in the mining districts that there was a disposition on the part of some mine workers to regard those of their comrades who obtained deferred classifications as slackers. Director of Production Neale declared that it should be most thoroughly understood that the Government and the United States Fuel Administration regards the man who remains at the mine doing his work, increasing the production of coal, as serving his country quite as truly and bravely as if he were on the firing line in France.

Reports from the most prominent coal-mining districts in the country were to the effect that everywhere the coal operators are exhibiting and the mine workers are displaying the most patriotic earnestness in trying to increase the production of coal. Voluntarily they are giving up many of their cherished recreations and are sacrificing their holidays. It was reported from the Connellsville district, for instance, that the men who voluntarily worked on July 4, turned out enough coke on that day to build 20 steel ships.

Production Director Neale explained fully the details of the proposed production campaign, with its appointment of production committees in every mine and the steps that are to be taken to insure full hours of labor each day and six full days a week.

Bonus Nuisance To Be Ended

Not only in central Pennsylvania is the bonus nuisance found to be undesirable. The Pittsburgh district has long ago taken action against it. Only on July 15 the Jackson district in Ohio, through the Jackson District Coal Association, decided by unanimous vote that bonuses must end. The resolution, however, did not use the word "bonus" except in the title, where it is termed the "Resolution Abolishing Bonuses." The resolution describes the offenses merely as "violations by operators. . . . of the Washington agreement entered into between operators and miners of the Central Competitive Field, Oct. 6, 1917, at Washington, D. C." The resolution requests that the Fuel Administration "order such mines, as are violating said agreement, closed down as being too expensive to operate longer under the wage rates and conditions contained in such Washington agreement."

Although the payment of bonuses to miners to hold them or to get them away from other mines is believed to be less general than formerly in the Illinois fields, charges were made at a meeting of the Southern Illinois Mine Superintendents' Association at Duquoin, Ill., a few weeks ago that certain operators are paying their men a cash premium to keep them from going to other mines. Evan D. John, of Springfield, Director of the State Department of Mines and Minerals, and State Inspector Henry Bannister, of Herrin, were among the speakers. Mr. John urged a more vigorous enforcement of laws pertaining to labor.

H. A. Garfield in an interdict on bonuses issued Aug. 5 said: "I hereby announce that if any operator hereafter undertakes to pay a bonus in any form in violation of the terms or spirit of the agreements . . . I shall assume that the mine price of coal allowed the operator is too high and I shall accordingly order reduction thereof."

Will Not Wait on Law To Act

"Loyalists" among Illinois coal miners continue to take the law into their own hands. William Knauel, a miner of Staunton, Ill., was tarred and feathered a few days ago by an "Americanization" mob after his wife complained that he had torn down and destroyed a service flag she had placed in their home in honor of her son, Knauel's stepson. After the man had been given a coat of tar and feathers, he was run out of town and ordered not to return. Staunton was one of the first Illinois communities to adopt tar and feathers as Americanization arguments.

Germany is still asking questions about the lynching of Robert Paul Prager, German enemy alien, at Collinsville, Ill. Circuit Clerk Mellon of Madison County has received a communication from Henry Nussle, Swiss Consul at Chicago, in charge of German interests in Illinois, asking for a statement of the exact facts in the case. Prager was lynched after a controversy with coal miners of Maryville, Ill., who refused his application for membership in the union and accused him of being a German spy.

EDITORIALS

Foreign Coal Trade After the War

NEW ELEMENTS will enter into the coal trade after the war and are quite likely to make it possible for us to ship our coal to Europe. The principal element will be the lessened wheat export. Great Britain is learning to feed herself. Before the war she furnished food for 11 weeks in the year, now she supplies enough for 40 weeks. It is easy to see therefore that we shall be likely to ship her less food than we have hitherto, and, that being so, the bottoms that formerly took wheat will probably go to Europe with coal.

We used to be somewhat heavily in Great Britain's debt; we now are Europe's creditor. The interest on that debt will make it necessary for her to ship us of her substance. Consequently there should be outbound empty bottoms crossing the Atlantic and these we may, presumably, fill with coal. Of course, we shall not ship this fuel to Great Britain, but we shall probably supply many of her former customers.

However, it is never safe to prophesy. Many changes have been brought by the war and as many may result from peace. Probably an attempt will be made to keep in wheat all the British acres that have been tilled during the war. Yet there will be many who will not wish to keep ancestral parks under the plough. Besides where will the men be found if Great Britain is to keep her many new factories working as well as her acres of farm land? She will not long approve of the use of female workers for strenuous, uncleanly labor; of this we may be sure. Certainly she will be opposed to long hours of work. The little amenities of civilization—flunkyism and personal service—will work their way back despite the growth of democracy and even despite the growing distaste for such occupations.

The workers also will once again advocate their doctrine that the less work everyone does the more work there is for all. Their old restrictive trade practices will resume their unhealthy growth. The spirit of the past will rise again. The plants will be more modern and progressive, but the men in them will seek as ever to reduce efficiency, arguing that the efficiency of the worker has ever been his undoing.

England may be merry England once again; that is, it will tend to seek merriment first and business afterward, a procedure which does not make for much real merriment for the workingman. He is merriest and happiest when he works a busy eight-hour day and seeks to attain a maximum product in that time. Unfortunately the war has not convinced him that his theories are wrong. The genius of his race is against him. John Bull will go back to his easy-going, benevolent way of doing business and some forms of industry will suffer for lack of sufficient labor to keep all the industries going.

Will Great Britain then have the power to be a manufacturing and a wheat-growing nation in face of competition from a regenerated Turkey-in-Asia, Russia and Mesopotamia? Probably not. It seems more likely that manufacturing and agriculture cannot both survive and that manufacturing will again win out. Should conditions allow agriculture to retain its present place among British industries, then the coal trade of America will be able to fill the ship bottoms that the farmers of America no longer use.

Coke Region Precedents Broken; Some Still To Be Broken

THE Connellsville coke region is making some new precedents these days with a fine disregard of time-honored customs. It also indulges the hope that it may be able to make still other changes in the established order. It is not to be inferred from these statements that the producers of beehive coke have been set hard and fast against innovations, improvements and other evidences of progress, for quite the contrary has been the rule, faith and practice. Few industries have been quicker to adopt new devices of proven utility or more constant in its search for better methods. It is merely to be noted that the region, always safely conservative, has been doing things which aforetime were accounted as apparently impossible. Similarly, events that were seemingly improbable of happening have been coming to pass. On the other hand, others appear almost as remote in their realization as ever.

Thus, as is noted elsewhere in these columns, when the W. J. Rainey interests, one of the leading independent merchant producers of beehive coke, formed a business alliance with a maker of steel to jointly build and operate a byproduct coke plant, one of those things happened which but a few years ago would have been considered most unlikely. That this union of interest is now regarded as a prudent and forward-looking venture shows the changes time and new conditions have wrought in an industry one time hedged about by perhaps more than the usual number of conventionalities, and certainly by some of unusual character.

Interesting as this incident is in its significance and relation to the future development of the whole coking industry, there occurred during the week of July 4 another history-breaking episode. For the present, this is important as an illustration of one of the many transformations war can bring about in the sentiment and attitude of men who are several degrees removed from the man behind the gun but who are, like him, susceptible to influences that stir to patriotism though the sentiment is expressed in a different form.

During the 37 years the Connellsville region has been identified with the production of beehive coke, the Fourth of July has been regularly, but never exactly religiously, observed as a holiday. True, there have

been years when a greater or less number of plants, under the stimulus of high prices and an active market, have worked a "short day," but not until this year of the Great War has the general order been given and obeyed to make a "full run" on Independence Day. Thus has a new precedent been established that is somewhat more than a precedent. It is concrete evidence of the fact that the workers of the region can change the old order when they will; it is tangible proof of the value of a campaign of education when stimulated by patriotism and directed by a variety of forces working with one end in view.

A year ago, when the suggestion was made to run on the Fourth of July, it met with so chilling a reception that its impracticability immediately became evident. The temper and spirit of the men was such that they would have very determinedly resisted any attempt to change their habits of work on our Natal Day. They were receiving the highest wages ever paid in the history of the industry, and their earnings were limited only by their efforts and their application. They were making "big money" and spending it freely, and were totally indifferent to any appeal savoring of a hint to restrain their propensity for laying-off work upon the slightest pretext. "Me plenty money; plenty beer; me no work!" was the expressive, sometimes insolent, but always conclusive rejoinder to the urgent request to be on the job next day.

During the intervening months there has been a noticeable change in mental attitude, even though the change has not embraced the habits of work in an all-inclusive and permanent reformation. Wages have meantime been twice advanced and earnings have swelled pay envelopes to the bursting point. Measured by personal necessities, there is less incentive for men to put forth unusual or long-continued effort to maintain output to the individual standard, if not increase it. Hence, to break precedent by working on a day which long-established custom has set aside as a day for the suspension of activity, indicates that some strong impelling force has moved the workmen to this action. Persistent, patient and long-continued efforts and the employment of every known persuasive means have failed, and are still failing, to induce the practice of greater industry and more regular habits of work on ordinary days. The conclusion seems to be that, having acquired a better appreciation of the situation and the significance of Independence Day than has generally been credited them, the appeal of patriotism was potent in moving the coke workers to respond to the call to pull and fork coke on the Glorious Fourth.

The Liberty Loan, Red Cross, Y. M. C. A., K. of C. and War Savings Stamp drives, the departure of draftees, the dedication of service flags and activities immediately associated with the coke region's part in the war, have given the men a better comprehension of the war situation, but they still lacked the understanding contact to impel them to industry. The money-raising campaigns excited a spirit of friendly rivalry between plants or teams and quickened the sporting blood more than they deeply stirred patriotism. The patriotic meetings, addresses by war veterans, Four-Minute Men and others were informing to the superintendents, foremen and other English-speaking men, but the influences were slow to reach the foreign-born. When, therefore, preparation for making the Fourth a workday were made, every man on the job was seen and, no matter what language he spoke, he was fully informed of the object and purpose. He not only learned what his fellow workers were going to do, and why, but he was enabled to definitely make up his own mind as to the obligation resting upon him. The response came with a unanimity that was surprising.

The success of the Fourth of July work program proves that the coke workers, just like other citizens, are not wanting in patriotism nor backward in showing it once they are given to understand that it can be expressed in more than one form. Gratified over the splendid showing of the Fourth, the operators are now mildly hopeful that other precedents can be broken that will institute a Fourth of July order of work six days every week by every man on the job. To accomplish this will be breaking all precedent-breaking records.

What Makes the Tonnage Drop?

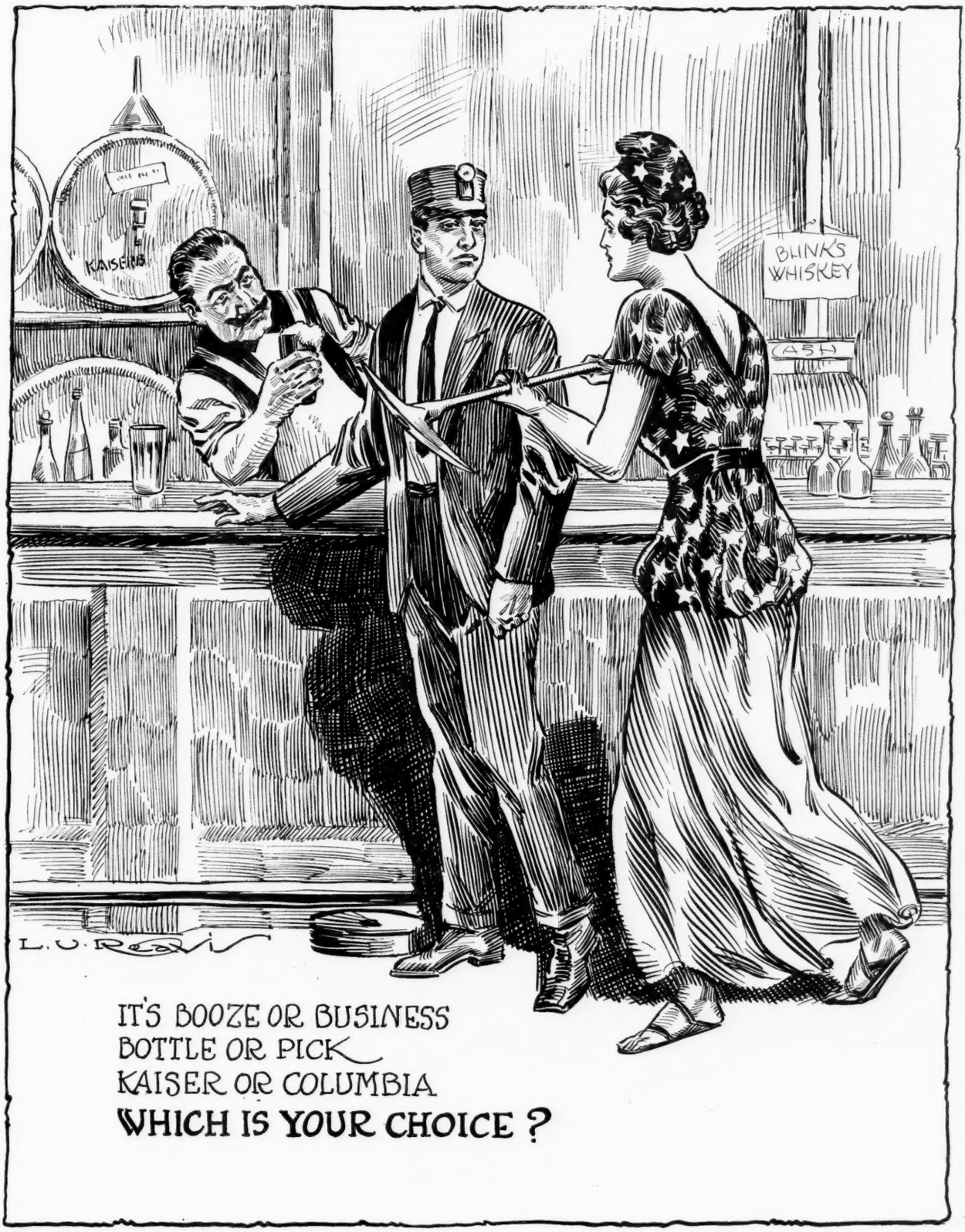
WITH ALL OF US the impulse is to look for steady accretions in coal tonnage. Records once made are regarded as merely footholds for another advance. There was consequently great disappointment when the big bituminous tonnage of the week ending July 13 was followed by a drop despite all the propaganda and effort.

It is possible, however, that the great production of the second week in July was the outcome of the holiday in the first week of that month. This put the railroads in better shape to supply cars, and it made the miners more willing to work in the week that followed. Such miners as were idle for several days over the Fourth began to feel the necessity for bringing up their tonnage to its customary biweekly level. The half month, over which a pay period extends, was ending, and the first half having been partly wasted, it was necessary to end up the period with a more generous output or the pay would be less large than usual. This probably accounts for the large tonnage of the second week of July. But how account for the lower production of the third week?

Perhaps the harvest had something to do with that decline. Miners in some cases, men who have left the farm for the mine, especially when living at or near the old home, help in the harvest and assist in threshing. The unpleasantness of the work in the broiling sun is compensated by the pleasure of working with one's kith and kin and neighbors, the joy and excitement of harvest home, and the profit that a few days work will bring, for they are almost the only profit-bringing days of the farmer's year. No one has kept a tab of the number of mine workers who help in the harvest.

In fact few of the operators have attempted to realize the effect that the mobilization for the farm yearly has on the production of their working forces. That mobilization comes unexpectedly, and as the men depend on one another's work the dislocation of the working force adds to the difficulty. Not only the time of the absent men is lost. Other men are laid idle by the idleness of those who are absent.

You Can't Combine Patriotism With Booze



Soldiers and sailors are not allowed to drink in their leisure time—because booze interferes with their business. Mineworkers are cutting out liquor because it prevents them from doing their best at their work, which is mining coal to fight the Kaiser.

DISCUSSION BY READERS

The Wagon Mine a Menace

Letter No. 1—The discussion of the relation of the wagon mine to the present mining situation, which was started some time since in *Coal Age*, seems to have fallen short of its purpose. The intention evidently was to show that that class of so-called mines is a menace to legitimate business.

With the inflation of the selling price of coal, due to the increasing demand imposed by war conditions, wagon mines, or what may be better termed "country banks," have multiplied by leaps and bounds. Such has been the effect on the coal industry, which is now regulated by Government and made to conform to established methods of mining, that the enormous growth of these smaller mines can only be likened to that of a gigantic cancer that is slowly but surely sapping the vitality of the industry.

The fact is hardly appreciated that these mines have, within the past year, dumped upon the coal market hundreds of tons of material resembling coal, but which upon closer inspection is found to be a mixture of bony coal, bands, slate and the refuse of gob piles and rock dumps, mixed with a limited quantity of inferior coal. Had the mines been subject to the same Government regulations that control the output of larger mines, they would have been abandoned long ago as being unprofitable. It is a fact that the product of these mines could not be properly cleaned and the output made to conform to the restrictions imposed by the Government, without subjecting the operations to a prohibitive expense that would have shut down the large majority of them.

THE MINES UNSANITARY AND UNSAFE

Aside from the impurity of their output, these mines are, as a rule, unsanitary and unsafe. The workings are poorly drained and ventilated, and the miner must often work in peril of his life, owing to insufficient and poor timbering. Little or no provision is made for ventilation and drainage. In most cases, these conditions only exist through the fact that the mines do not employ a sufficient number of men to bring them within the regulation of the mining laws of the state.

Only those familiar with mining practice can appreciate to what extent a properly regulated mine where discipline is maintained, is injured by reason of being located in close proximty to smaller openings where the miners are allowed to come and go as they please and are subject to no discipline and where they are not required to clean their coal when loading, but throw bone, coal and slate into the car together. It is not strange that mines where the men are compelled to properly clean their coal have difficulty to hold their men when the opportunity is presented of finding work where they are subject to no such restrictions.

As is well known, the oldest coal-producing companies are standing loyally and faithfully by the Government and striving to satisfy every demand made upon them. The injustice of the situation is apparent to all, and it goes without saying that relief measures should be adopted in the way of Government interference that would place these mines on the same working basis in respect to their product or compel them to close down.

What I have written is the result of personal observation. It is not based on hearsay or the report or experience of others. The keen competition between all mines to secure the needed workmen has never been greater than at the present time, and this fact alone makes it important to urge every measure that will assist legitimate mining and improve the coal situation.

Confluence, Penn. H. E. GRAY.

Loading Coal at the Face

Letter No. 1—How many tons of coal can a man load in a day of 8 hr., when driving a 15-ft. place in a 3½-ft. seam of bituminous coal? I am led to ask this question after reading the announcement of the Poster page of *Coal Age*, July 6, p. 29.

The Poster states that Ed. Blagg, 27 years old, a loader in No. 1 mine of the Buckeye Coal & Railway Co., San Toy, Ohio, loaded 508 tons of coal in 22 working days of 8 hr. each, in the month of May. This would mean an average of 23 tons a day; or, practically, a ton every 20 min. But assuming the cars, in this thin seam, have a capacity of about 1½ tons, we will say that the man must load 16 cars in 8 hr., or a car every 30 min. if he loaded continuously.

Now, for the sake of argument, let us assume that a 6-ft. cut has been made with the machine, in the man's place, during the night. When this coal is blasted down, there will be between 11 and 12 tons of coal ready to be loaded. We will say then that this man loads eight cars from his first machine cut, which is the work he must perform in the first half of the 8-hr. shift.

Arriving at his place in the morning and finding his coal cut, the miner proceeds to drill two or three holes, which he charges and fires. This work, together with the time required for the air current to sweep away the smoke of the blast, will consume, say, one hour and a half, under fairly favorable conditions for performing the task.

The miner must then arrange his track and bring a car to the face for loading, and we will say that, making a fair allowance for rest and some little delay, there remains two hours for loading the eight cars. As each car is loaded, it must be moved back and an empty brought forward in its place. Also, it will be necessary to shift the track from side to side as the work proceeds, or much of the coal will have to be moved some distance in loading. Again, it cannot be assumed that the rib shots will always square the place ready for the next machine cut, and there will be some pickwork that must be done to get the place in readiness for the machine.

The work described as being done in the first half-shift will need to be duplicated in the second half-shift. However, there is nothing to prevent the supposition that, in this case, the miner may have alternated his work between two places, devoting the first half-shift to one place and the second half-shift to the adjoining place. But, to say the least, that the man kept up this daily tonnage for 22 working days, in a single month, is a remarkable achievement, and it must be assumed that things were working uncommonly smooth during the entire time. Most practical mining men will agree that the record is worthy of more than passing notice.

THOMAS HOGARTH.

Coal Run Mine, McIntyre, Penn.

First Aid to the Uninjured

Letter No. 8—I have read with much interest the numerous letters on this subject, especially that of W. H. Noone, *Coal Age*, June 29, p. 1210. I was forcibly impressed with his remark suggesting that, "More than anything else in coal mining is the necessity of aiding men to recognize the dangers with which they are surrounded and take precautions to avoid possible accidents," adding, "This aid must be given to the man before he is injured."

In speaking of the responsibility resting on a mine foreman, however, Mr. Noone says, "He will find it necessary to enforce a rigid discipline in respect to the timbering of working places;" and in another place he states, "It may be necessary to punish a man for carelessness, in order to bring him to appreciate means taken for his safety."

It appears to me that our friend approaches this question of discipline from the wrong side. Let me suggest that a mine foreman's first duty is to establish a system, in the working of the mine, regarding every detail of the work, particularly that of timbering. Without such a system there can be no true discipline. The distances apart of post timbers and timber frames should be specified to conform to the working conditions, so that men would know exactly when and where timber is needed. Miners should then be held responsible for standing the timbers in their places.

What Mine Discipline Means and Involves

Mine discipline does not mean the punishing of men by using harsh or cruel measures. It is my belief that these are not necessary to make men appreciate what is done for their safety. As I regard it, mine discipline simply means operating according to a fixed system and rule that everyone will understand and follow.

Discipline among workers involves three principles: (1) Willingness to obey orders. (2) Perfect understanding of orders. (3) The training necessary to enable the man to do the proper thing at the proper time, even though no one is present to see that this is done. It should be the motto of every man working in a coal mine to perform his work in the same manner whether the boss is present or absent.

The statement that "accidents from blasting are not so many" may be true; but, in the large majority of cases, it is more by good luck than good management, as few mines take sufficient steps to eliminate this class of accidents. Many are following the usages and practice of 100 years ago, using black powder instead of permissible, and allowing miners to fire their own shots instead of employing competent shotlighters for this work. On every hand we find men using short fuse, crimping a cap with their teeth, smoking and using open lights in places known to generate gas. Miners will make up their charges with their lights on their heads and ride motor trips with explosives on their person.

Attention was drawn to the need of greater care and caution in the handling and use of explosives, in the Foreword, Feb. 23; but how many of the suggestions made in that Foreword have received the thoughtful consideration of mine operators and managers. Instead, mine officials are too prone to blame the men for carelessness when proper system and discipline are not used in their mines.

Illinois Mining Law Regarding Explosives

Allow me to refer here to the explicit manner in which the Illinois Coal Mining Law treats the question of explosives. Sec. 19 of the law requires that the delivery of powder in the coal mines be made by the company after the shotfirers have come out of the mines and before the dayshift enters for work, in the morning, and when all electric current is turned off.

No explosives can be carried in the same car with tools and other materials. The miner must keep his powder in a locked wooden box, which must be placed as far as practicable from the track and from other boxes, and no high explosives shall be kept in the same box with black powder; also, detonating caps must be kept by themselves. The law further specifies that not more than five standard charges of powder shall be used in a single shot, in 5½-ft. coal; and not more than four standard charges in seams where the coal is thinner. In closing, let me say that no aid is given to the man before he is injured, unless the management lays down a system of performing the work and maintains a proper discipline.

J. M. RODDIE.

Springfield, Ill.

Mine Rescue Work

Letter No. 2—The subject of mine rescue work opened for discussion by J. S. Gelston, *Coal Age*, July 6, p. 32, is one of the utmost importance to all persons connected with the coal-mining industry. Notwithstanding the fact that we have improved mining laws and mine regulations that afford a greater measure of protection than was possible before their enactment, disastrous explosions and mine fires still occur with great frequency.

When these calamities come and rescue work is needed, there is no necessity to issue a call for volunteers. The trouble, then, is to prevent men from rushing headlong into the mine, regardless of their own safety and heedless of the dangers that will confront them in the wrecked passageways, now filled with poisonous gases, the afterdamp of the explosion. But, being overcome in the afterdamp is not the only danger rescuers must face. In many cases, fires have started and there is every possibility of a second explosion occurring, owing to the presence of gas and dust clouds that have escaped ignition in the first explosion.

Mr. Gelston has asked the question, "When is a man brave and when is he foolhardy in the face of danger, and what is the dividing line; or is that a matter of individual judgment?" In my opinion, the part taken by men, at a time of danger, is the result of their individual judgment. In every walk of life, some men will do things at such times that others of calmer judgment would regard as foolhardy; or, to say the least, fraught with unwarranted risk.

We will all agree that, to accomplish any dangerous work, certain risks must be incurred or no good will result. The willingness to assume risk will vary with the individual's judgment. The old saying is "Nothing risked, nothing gained." However, the more intelligent the judgment, the greater will be the good accomplished, and this thought brings me to consider the value of breathing apparatus.

The Hope That Animates Rescuers

In the letter to which I have referred, Mr. Gelston remarks, "While breathing apparatus can often be employed with advantage when exploring a mine ahead of the air, or in fighting mine fires, it is generally the case that where the mine air is sufficiently foul to require the use of breathing apparatus it is too foul to support life, and there is little hope of rescuing men by this means."

Admitting the fact that the hope of finding men alive, in a mine where they are entrapped inside of a fouled atmosphere, is generally slim indeed, it must be remembered that *hope dies hard in the heart of the miner*, at such a time. Instances are on record where men have been rescued under just such circumstances, by men wearing breathing apparatus, without which they could not have been reached by their comrades. Also, men have been brought out by their rescuers, through the use of "salvators," or half-hour apparatus, applied to the men to bring them safely through the fouled atmosphere, filling the entries.

Again, there are instances where men have been lost, because aid could not reach them for the lack of the needed breathing apparatus. Later, they have been found to have lived hours and even days, in hope of rescue, but finally succumbing to exhaustion. Another instance when men were lost because no breathing apparatus was available at that time was the explosion at the Edge Green colliery, Lancashire, England, in 1902, which I recall vividly because my own father was numbered among the victims.

The "Cherry" and "Bellevue" Disasters

A notable instance is that of the rescue of 21 men, after they had walled themselves in, in a section of the Cherry (Ill.) mine, and were rescued eight days later when all hope had been abandoned. A full account of the Cherry mine-fire disaster, which cost the loss of 259 lives, Nov. 13, 1909, will be found in the Illinois Coal Report for 1910, pages 459-509, inclusive.

Let me cite, in closing, the two Bellevue mine explosions, which occurred Oct. 31 and Dec. 9, 1910. A full report of the disaster is found in the Annual Report of the Department of Public Works, for the Province of Alberta, Canada, for 1911, pages 119-136. In the second explosion, in December, Robert Strachan, an inspector of mines of British Columbia, together with other rescuers wearing breathing apparatus of the Draeger type, succeeded in penetrating into the workings and rescuing several men who would otherwise have been lost.

It is my opinion, also, that artificial resuscitating apparatus, to which Mr. Gelston has referred, in his closing paragraph, has been the means of saving hundreds of lives. If the appliance is kept thoroughly clean and in a sanitary condition, as it ought to be, there is little danger of death from respiratory disease mentioned by Mr. Gelston. James Touhey.

Vancouver, B. C., Canada.

Travel of Electric Current

Letter No. 4—In connection with the discussion of the question as to whether an electric current travels over the surface or through a conductor, which I am not competent to say, it may be of interest to cite the following incident in my own experience.

In our mine, we had used a 00-wire on our trolley road, until the extension of the system and a 3 per cent. grade against the loaded trip made it advisable to use a 0000-wire on the extension.

Everything went well for a time. But, it was noticed that the 00-wire became quite warm whenever the trip reached the 3 per cent. grade. One day when the locomotive was hauling an extra heavy trip up that grade, the 00-wire became red hot. Under the heat, this wire stretched and sagged in the entry. I am inclined to think that this fact would tend to show that the current flowed through the entire body of the wire. If the flow was only on the surface of the wire, it would hardly seem possible for the entire wire to become heated to that extent.

This subject is of importance in connection with the requirements of the bituminous mine law of this state. The law requires that all electric conductors shall be of sufficient size to transmit the required current without danger. In other words, the current capacity of the wire must be such as not to injure the insulation of a conductor or start a fire by the heating of the wire.

Leckrone, Penn. W. H. G.

Elevation of Outer Rail of Track

Letter No. 1—For many years past, my particular line of work has been the laying of mine tracks and switches. On this account I was much interested in reading the brief answer to the inquiry regarding the proper elevation to be given the outer rail of a track when rounding a curve in a mine. The simple rules given in reply to this inquiry struck me as very complete and easily applied.

In this connection, kindly allow me to cite an instance that occurred recently in my own practice when I was required to lay tracks for a cut-off which has given good satisfaction from the start. At the time, I was employed as trackman for the Saline County Coal Co. at Grayson, in this state. We were starting to extend the motor haul into a south entry off the main east. Mules had been employed to haul the coal from this entry, over a back switch onto the main east.

Starting a sufficient distance back on the main east, the plan now was to cut through the pillar so as to

give an easy curve for the motor to reach the south entry. This plan required the laying of a right-hand switch on the east entry and driving a cut-off to the south entry on a curve having a radius of 70 feet.

Coming out of the south entry, the conditions were such that there would be a natural grade of 1 per cent. in favor of the loaded cars, and to overcome this grade on the outer rail of the curve, I decided to raise that rail, starting about the center of the curve and making that the high point so that there would be practically a rise of 1 per cent. to that point and a fall of 3 per cent. from there to the switch on the main east.

Calculating Ordinates for Curving Rails

In order to expedite the work and make the change as quickly as possible, the foreman asked me if I could not curve the rails beforehand so that they would be ready to lay when the cut-off was completed. I agreed to do this and, for that purpose, calculated the middle ordinate for any desire chord, by dividing the square of the chord by eight times the radius, using the formula $o = c^2/8r$.

For example, assuming a chord of 20 ft., the middle ordinate would be $20^2 \div 8 \times 70 = 5/7$ ft., or say $8\frac{5}{8}$ in. The quarter ordinates I then took as two-thirds of this, or say $5\frac{3}{4}$ in. When all was ready, we laid the iron, surfaced and tamped the ties, bracing the track well against the rib to keep it from moving until the roadbed was set and solid.

Ten-Ton Morgan-Gardner Locomotive Hauling a 40-Ton Trip

The motor was a 10-ton Morgan-Gardner, and hauled twenty 2-ton cars in a single trip. The first day the switch was used I asked the motorman to run slowly and worked up all the low points. The result was that, in a short time, we had a uniformly smooth track all around the curve. Later, the motorman came out over that curve with his controller set on parallel.

Let me say, in closing, that the elevation of the outer rail of a curve depends not only on the radius of the curve and the speed of the trains; but, if the trip is pushing the motor, as it is coming down a grade, the outer rail must be raised more than when the motor is pulling the trip. However, to raise the outer rail too much is as bad as not to raise it enough. It is important to have the curve and the rise of the outer rail as uniform as possible, in order to prevent the swaying to and fro and knocking of the cars against each other when rounding the curve. G. D. York.

Harrisburg, Ill.

Sealing Off Fire on Intake

Letter No. 10—The inquiry of "Ancora," *Coal Age*, June 22, p. 1173, regarding the sealing off of a fire found burning on the intake side of a pair of headings driven in solid coal and generating so small an amount of gas as not to require the use of safety lamps, presents a subject that is always of interest in coal mining.

The fact that these headings are driven in solid coal greatly simplifies the problem of extinguishing the fire, since there are but two openings to consider. Where rooms have been turned, and especially where pillars are being worked, the sealing off of a fire will often require the building of several stoppings in as many different openings. The difficulty is increased greatly where the drawing of pillars and the settlement of the roof have opened crevices to the surface.

Collecting Material and Building the Stoppings

In the present instance, however, all needed material, consisting of the necessary posts, 2-in. planking, nails, loam for filling and cement or clay for sealing all cracks after the stoppings are built, should be sent into the place at once. While waiting for this material, work can generally be started by erecting a temporary brattice of canvas or boards and this should be done at the first opportunity.

An opening should be made in the first crosscut outby from the fire where it is possible to work. A temporary stopping is then first built on the return just inby of this crosscut. The placing of this stopping will greatly reduce the quantity of air passing over the fire and cause the major portion of the current to be short-circuited at the crosscut just opened outby from the fire. If it is necessary to further reduce the quantity of air reaching the fire, a canvas can also be hung in the intake airway just inby of the same crosscut.

When the material arrives on the scene, heavy 6 x 6-in. posts should be set close to either rib and 2-in. planks spiked to them to form the inside wall of a permanent stopping. In the same manner the outside wall of the stopping should be started so as to leave a space of 12 in. between the two walls. This space should be filled with loam and well tamped. When the stopping is completed to the roof, it should be thoroughly sealed with clay or cement. The second stopping should now be built, in like manner, on the intake airway.

Assumed Condition of Air Behind Stoppings

The inquirer also asks, What would be the nature of the air confined in the space behind the stoppings; (1) assuming the first stopping is built on the intake; and (2) when the first stopping is built on the return of the headings? In answer to these questions, let me say it is my opinion that the condition of the air behind the stoppings would be much the same in either case. The oxygen of the air would be consumed by the fire, and carbon dioxide together with a certain amount of carbon monoxide would be produced. If sulphur was present in the coal there would probably be some sulphurous fumes produced besides.

My reason for closing the return heading first is that the pressure of the air on the intake side would then be exerted to restrict the emission of gas from the coal and other strata. On the other hand, if the first stopping was to be built on the intake, it would appear to my mind that a suction would be formed by the air current passing through the crosscut outby from the fire. This suction would be exerted on the return side and tend to increase the emission of gas from the strata.

I confess that this reasoning is not wholly satisfactory to myself, and I have never been able to quite understand why textbooks advise the building of the first stopping on the return air-course, but have hoped that this discussion would make the reason clear.

Cassidy, B. C., Canada. J. W. Powell.

[Mr. Powell should read carefully the explanation given in the letter of William Dickinson, *Coal Age*,

July 25, p. 187, which gives clearly the logical reason for building the first stopping on the return entry, in this case. A like reason is also given in the letter of Thomas English, Aug. 1, p. 236. It may be stated, here, that the emission of gas from the coal and other strata would not be appreciably restrained by the slight change in pressure caused by building the first stopping on the return airway as Mr. Powell has suggested.—Editor.]

Americanizing the Foreigner

Letter No. 1—I was deeply interested in the reading of "Observer's" letter, bearing on the human side of our relation to foreign-born mine workers, which appeared in *Coal Age*, July 25, p. 189. In justice to the efforts put forth by all worthwhile coal companies I cannot agree with his suggestions, in the second paragraph, that we fail to properly assimilate this class of mine workers, and do not appreciate their traits and peculiarities.

As I have stated, practically all of our large coal companies are doing everything in their power to Americanize the foreign element employed about the coal mines of this country. They have insisted that good schools be built to house the pupils and competent teachers employed to educate them.

Work Among the Foreign Women and Children For Their Education and Training

At many of the larger mines, professional nurses and housekeepers have been employed by the larger companies and are at work in the various towns, trying to educate foreign women in the ways and customs of the American people. Playgrounds, equipped with adequate apparatus, swimming pools, community reading rooms and poolrooms have been established. Moving picture theaters and athletic fields, where sports may be conducted, are also a part of all progressive mining towns. In fact, everything that will tend to improve the condition of the foreign-born worker is at hand.

Mine superintendents and the inside and outside officials of all coal mines now do everything in their power to Americanize the foreign-born element in their midst. It is my honest belief that they *do* meet these people with the ready sympathy and the distinctly human attitude that their condition demands, and they *do* try to help them to carve their own destinies as true American citizens.

Results Show the Average Foreigner Will Not Be Americanized

That this work on the part of executives of coal companies and operating officials, at the various mines, has seemingly failed in its purpose is because the average foreign-born worker refuses to become Americanized. The most of these people come here for one purpose, which is to accumulate enough money to return to the old country to spend the remainder of their days on a little farm and live among their own people in comfort. Some, it is true, come here seeking a new home and a place to bring up their children in peace and comfort. They become Americanized and make good citizens, but their number is so small as to be almost negligible.

In spite of all work done by community workers, in various mining towns, the foreign women still run around in their bare feet and retire at night without washing them. In fact, they seldom wash them for several weeks, and this is also true of the children. Those familiar with mining conditions know that foreign children are still born as they were in the old country and American ideas have failed to change this custom. A doctor's services is rarely required. This is one of the things that ready sympathy and the distinctly human attitude have failed to change.

Use Made of Improvements in Houses

In regard to improved living conditions, where bathrooms are a part of the house occupied by the average foreign family, the tub is still used by a good many to hold the supply of coal necessary to heat the rooms. It will certainly take a lot of education on the part of our teachers to impress upon the minds of the average foreign family the fact that the bathtub is to be used to take a bath. They still prefer to do their bathing in the kitchen in front of all the assembled members of the family and boarders, using for the purpose a common washtub.

It has been almost impossible for the average mine superintendent to cure the foreign element of the practice of stabling their cows in the cellar instead of in stables built for this purpose, and in many instances the stable is still there, but the cow is kept in the cellar. There have been cases where chickens were housed in upstairs rooms and the fact only became known when the families removed to other towns.

Foreigners Resent Interference

It is hard for mine officials, at the various operations, to get very close to the foreign element for the simple reason that they resent interference of any kind. In this respect, they resemble the Chinese. It is true that they wear American clothes and, after a long time, do away with celluloid collars and ridiculous neckties; but the things they do not change are the things not apparent, except to the close observer.

In view of these conditions, I admit that, at many of the mines, the management has given up the idea of improving the condition of the foreign element, simply because they realize that the average of the foreign element will have nothing to do with anything that will tend to improve their condition and since they must have labor to carry on the production of coal, it is necessary that they do not go too far in this direction, else this labor will leave and go to a place where they will not be continually interfered with.

I could go on and cite incident after incident where much has been done to improve the social atmosphere surrounding the foreign-born miner, but such improvement has failed in its purpose. This is testified, too, by the fact that our jails are still crowded with such people, as are also our saloons and our streets. In conclusion, I must say that it will take more than motion pictures, hearty handshake or a slap on the back, or the work of missionaries, to inspire these foreign people in the direction of increased patriotic zeal and fervor.

Pittsburgh, Penn. EXPERIENCE.

INQUIRIES OF GENERAL INTEREST

Ventilation Problem

Kindly permit me to present a rough sketch of a section of our mine, lying about 6000 ft. from the main entrance, consisting of the 9- and 10-E and W entries, off the 9- and 10-N. We are not intending to push the north entries further ahead for a long time, as there is enough coal in sight on the east and west entries to last us ten years.

By way of explanation, let me say that the 9-N and the 9-E and W entries are the haulage roads and the

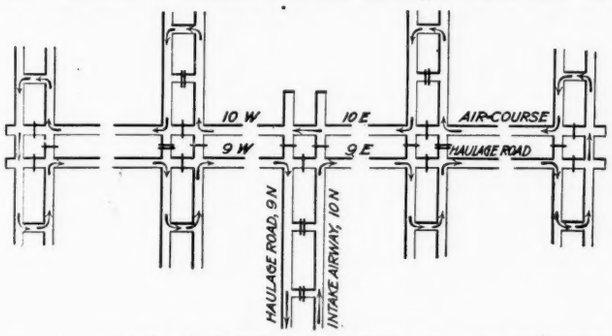


FIG. 1. SHOWING PRESENT COURSE OF AIR CURRENT

return airways, or will be when the present plan is put in operation, while the 10-N and 10-E and W entries will then be the main intake air-courses. At present, the air is coursed through this entire section of the mine in a single current, as shown in Fig. 1.

As indicated in Fig. 2, it is proposed to build an overcast at the point where the 9-E entry crosses the

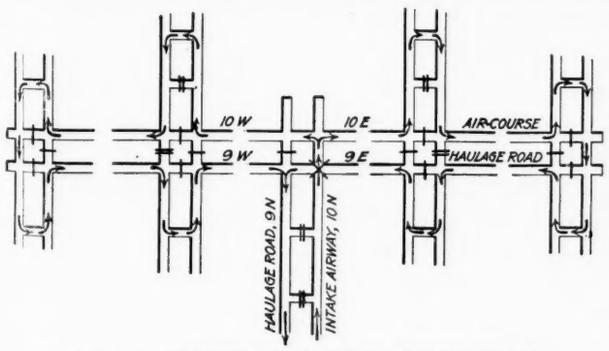


FIG. 2. SHOWING PROPOSED CIRCULATION

10-N. The main intake current will then pass over this air bridge and divide forming two air splits for the ventilation of the 10-E and 10-W entries, respectively. In the development of the mine, rooms will be turned to the right and left of each pair of the butt headings shown in the figure. Owing to the distance of these entries from the mouth of the mine, the air circulating in this section is deficient and will require, the installment of a booster fan to assist the circulation. There will be about 150 men working on the east and west entries, and the question is, Where should the booster fan be placed to produce the best results?

Allow me to ask, Will a "booster" work better when drawing the air or when forcing it through this section? I am inclinded to place the booster in the return current, either on the 10-E or 10-W entry. But, if the booster will work better forcing the air through the section, I would say it should be located on the intake airway near to the overcast. I hope this question will be taken up and discussed by those who have had experience with booster fans.

———, Ill. MINE SUPERINTENDENT.

The question of utilizing booster fans was widely discussed in the columns of *Coal Age*, some years ago, and aroused much interest. There were advocates for and against the installation of boosters in mines, the chief arguments against their use being the possible destruction of the fan, and its inaccessibility in case of accident when it would be most needed. It was shown, however, that there are conditions that exist at times in mines and which require the use of a booster; but emphasis was placed on the fact that such a fan should not be installed as an *essential factor* in the general ventilation of a mine. It will be generally conceded that all essential ventilating apparatus, in fan ventilation, should be located on the surface, where it will not only be better protected and cared for, but will be available and accessible in case of accident in the mine.

In the opinion of *Coal Age*, the province of a booster fan is, as the name suggests, to assist or strengthen the circulation of the air current at a point where it is practically stagnated. Owing to leakage through poorly built stoppings, doors and air bridges, it frequently happens that there is practically no circulation of air at the working face.

Under such circumstances, it will generally be the case that the future development of that particular section of the mine will not warrant a large outlay to overcome the difficulty and improve the circulation by repairing stoppings or rebuilding doors and air bridges. The installation of a booster on the return end of the air circulating in that section will frequently overcome the tendency of the air to leak through bad stoppings, and doors, by creating a depression in favor of the return airway, in the proper course of the current.

A booster fan should never be placed in a position to force the air through a leaky section, as this would only increase the leakage and fail to improve the circulation. The location of the booster must always be on the return side and the fan must be operated to exhaust the air from the intake, inby of the leak.

There is no doubt but that a large number of our practical readers will be glad to give their experiences and suggestions on the use of booster fans. It is a question that should be carefully studied from the standpoint of utility and economy.

EXAMINATION QUESTIONS

Mine Foremen's Examination, Shenandoah, Penn., Apr. 23, 1918

(Selected Questions)

Ques.—What are the factors determining the quantity of air passing in a mine at any given time?

Ans.—The reading of this question is slightly ambiguous. The factors producing the quantity of air passing in a mine, or that determine what quantity of air will be circulated, are the *power* applied to the air current through the action of the ventilator, and the *resisting power* of the mine, as determined by the extent of the rubbing surface and the sectional area of passage; or, more accurately, the *mine potential*, which will depend not only on the rubbing surface, the sectional area of the airways, and the number of splits, but where the splits are located in the mines. For the same potential, the quantity of air in circulation varies as the cube root of the power on the air.

On the other hand, taking the question to mean, What are the factors used in ascertaining the quantity of air passing in a mine, the answer is, The sectional area of the main intake airway and the velocity of the air current at that point. These two factors multiplied together give the quantity of air.

Ques.—A fan driven by a steam engine supplies air in a mine through several miles of air-course. A door is suddenly opened, allowing the air to go directly from the air shaft to the return. Will the opening of this door cause any change in the operation of the fan? Give the reason for your answer.

Ans.—The opening of the partition door at the shaft bottom, thereby allowing the air current to short-circuit at that point, cuts out the mine resistance against which the fan is operating, leaving only the resistance of the fan drift, shafts and the short underground connection between them. The cutting out of the mine resistance will cause the fan to run slower, assuming that the power applied to the fan shaft remains constant. The reason for this is that the volume of air passing through the fan is greatly increased, because of the decreased resistance to its passage when the mine is cut out of the circuit.

But, the work absorbed within the fan varies as the cube of the quantity of air in circulation, for a constant power applied to the fan shaft. This increased absorption of work within the fan itself throws a greater burden on the fan and, as a result, the fan wheel turns slower under the same power applied to the fan shaft. The same is true whether the fan is blowing or exhausting. As far as the action of the fan wheel is concerned, the direction of the flow in and through the mine makes no difference.

Ques.—What particular dangers are there in pillar drawing, and what, in your opinion, should be done to prevent accidents in the performance of this work?

Ans.—Drawing the pillars in a mine causes the roof to fall as the work progresses. It frequently happens that gas is located in the overlying strata of a coal seam, in which case, the breaking of the roof is followed by an outflow of gas, which is liable to accumulate over the falls and endanger the work, since any slight fall of slate may force the gas down on the workmen.

The breaking of the roof may also open a crevice to the surface and permit an inflow of water from surface streams. In any case, the workmen are always in danger of being caught under a fall of roof or coal, owing to the bending pressure that is exerted heavily on the loose end they are working.

In order to prevent accident in pillar drawing, only competent men familiar with the class of work should be employed for the purpose. A plentiful supply of timber should be kept on hand and used. Posts should always be kept standing behind the workmen and these should be carefully watched to observe the effect of the gradual subsidence of the roof.

Except it is known that there is a complete absence of gas, none but safety lamps of an approved type should be permitted to be used, and a good current of air should be made to pass around the pillar and sweep the fall, which should be tested for gas at regular intervals each day. The work of drawing back pillars should be continued regularly, as the dangers increase when the pillars are allowed to stand idle for a few days.

Ques.—Are you in favor of mixed lights in a mine where explosive gases are generated? Give full reasons.

Ans.—No. A mine generating gas should either be worked entirely with open lights, when this can be done with safety by maintaining a sufficient air current to dilute and sweep away the gas that would otherwise accumulate; or, the mine should be worked exclusively with safety lamps. The use of open lights in a mine where safety lamps are required in portions of the mine is always a menace to safety. This is true, not only because an open light will often be carried, unconsciously, into a working place where safeties are used, but a heavy fall of roof in a section generating gas may force the gas out onto the road where open lights are employed.

Ques.—In a mine ventilated by several splits of air, how would you ascertain if any split was passing more than its share of air?

Ans.—The quantity of air required in each split or district will depend on the conditions with respect to gas or dust in that district and the number of men employed therein, and the total quantity of air in circulation on the main intake airway must be divided between the several districts according to these conditions. The mine foreman knows the volume of air that should pass into each district, and it is his duty, when making his rounds, to measure the quantity of air at the mouth and at the inside breakthrough in each district.

COAL AND COKE NEWS

Harrisburg, Penn.

Seward E. Button, Chief of the Department of Mines, during the week held a conference with the bituminous mine inspectors regarding the coal situation, and states that he feels assured that although the number of workers has been reduced at least 15 per cent., the output will be increased at least 15 per cent., in which case the production for 1918 will be about 190,000,000 tons. Every effort is being made by the mine inspectors to see that properly prepared coal is sent to market.

The department is anxious, Chief Button says, to prevent a recurrence of the experience of last winter, when coal of most inferior quality was supplied to the consumers, and the inspectors have been instructed to give every possible aid to the Federal Fuel Administration in the efforts being made to protect the public.

Bituminous Production High

The soft coal production has been moving quite satisfactorily for the month of July. This is said to be due to the common-sense basis put into effect recently, of letting each mine have as many cars as it can load regardless of rating. The evil of the rating system, it is said, is that a mine which might have been a 50-car producer when the rating was made will get 50 cars even though it can load no more than 40, while a neighboring mine, rated at 25 will get only that number and will have them loaded perhaps around the noon hour. Operators say that distribution as per rating must be set aside again, or that mines be rerated, unless Pennsylvania production is to suffer.

Some Interesting Statistics

Figures given by the Central Pennsylvania Coal Producers' Association for two large companies in the central district show that among 3592 employees listed there has been a military registration to date of 846 men—indicating a possible labor loss of 23.5 per cent.

The actual miner, the cutter of coal, has increased his efficiency in spite of handicaps, according to other figures given out by the same association covering the records of 244 operators. Actual miners, loaders, cutters, and others were 8.3 per cent. less in number in May, 1918 than in March, 1917, but the tonnage produced per miner in May, 1918 was 99.6 against 99.5 in March, 1917. Other employees had increased 13.20 per cent. in the period mentioned, so that the tonnage per employee was but 66.5 tons for May, 1918, as compared with 70.9 in March, 1917.

Maximum Prices for Wagon Mines

Maximum prices that may be charged by wagon and truck coal mines in the Pittsburgh District for coal, and certain rules and regulations governing the operations of mines have been established by the local fuel administrator.

The following are the rules, issued July 30, controlling prices:

(1) For coal not moving by rail, a manufacturer or large consumer making a blanket contract with a wagon mine for the entire daily output of any one or more of these mines, delivery to take place each day of the week as the coal is produced, the maximum price shall be $2.45 per net ton, f.o.b. mine platform.

(2) For all coal so purchased in large quantities for public institutions, hospitals, office buildings, large apartment houses, small manufacturing operations, mercantile establishments, and like institutions, including a supply to retail coal dealers, the maximum price, (where not taking the full and complete output of the mine and providing for its continuous operation without interruption) shall be $2.75 per net ton f.o.b. mine platform.

(3) For those consumers of coal ordinarily covered by the term "domestic users" and taking only small quantities, and especially any consumers not in the first and second classes above mentioned, the maximum price shall be $3 per net ton, f.o.b. mine platform.

Charleston, W. Va.

A special appeal was made by both D. R. Lawson, district representative of the Fuel Administration and by C. F. Keeney, president and Fred Mooney, secretary of the Mine Workers of District 17, last Monday to the miners in the Fairmont region urging them to produce every pound of coal possible in order that the government order of 150,000 tons of coal to be shipped to Curtis Bay last week might be complied with without failure. As a result of such an appeal and with a better car supply than was available the week before, production jumped in the Fairmont district, both operators and miners bending every energy to fulfil government expectations. The Baltimore & Ohio R. R. was under special orders to have an ample supply of cars on hand.

Cars were more in evidence last week in the Fairmont field than during the week previous when there was a decided slump but numerous factors led observers to believe that the output would fall short of the quantity expected. At one mine for instance, most of the miners laid off to go to a funeral. That has been the case elsewhere and has resulted in an agitation for the adoption of the practice now in vogue in the hard coal fields of designating a small committee to represent the miners at funerals in the future. With the Fairmont region mines under order to supply Curtis Bay with 150,000 tons last week, manifestations of indifference on the part of some miners caused apprehension in some quarters lest the district fail to meet the requirements for these shipments.

While production has undoubtedly increased in this state as reflected in figures made public at Washington, the maximum output has not been reached by any means and labor shortage still gives operating companies much concern. The Kanawha district has shown as much of an improvement as any one region, but producers in that district feel that if every man will only exert himself to the utmost, production can be still further increased. Speakers—soldiers and civilians—in mining towns and in the moving picture theaters have been talking nothing but production for the last few weeks and this campaign has made itself felt, but the miners are not yet fully awake to the responsibility resting upon them and this, it is believed is due solely to the tactics practiced by a few local leaders. As soon as this trouble reaches a head, mine workers will begin to produce startling results.

Weekly Production Is High

While the weekly production of the Pocahontas and Tug River fields is averaging over 450,000 tons a week, there is still a production loss. An improvement has been noted there within the past week but there is still a labor shortage which precludes maximum production. In no coal district now is lack of cars interfering to any appreciable extent with production.

New River operators are confident of being able to exceed all records for production in August, unless unforeseen circumstances interfere with their plans. Producers had hoped to be able to do this in July but the Fourth of July holidays disorganized their plans and production fell off that week.

While the average output in the New River district is about 310,000 tons of coal a week it has been better than that in the recent past. There has been absolutely no complaint on the score of car supply and in the New River field labor is exerting itself to a greater extent, though there is said to be room for further improvement.

The Kanawha district went "over the top" during the last week in July with the biggest weekly production of the year—221,407 tons—and likewise July was the biggest month, the total loads delivered being 42,620. The increase of about 20,000 tons over the week previous was due to greater efforts on the part of the miners, the total hours, worked being 6265, only 532 hours being lost through shortage of labor. Car shortage was responsible for 393 hours loss. The Chesapeake & Ohio R. R. has announced that the coal movement for July was the biggest the road has ever had by 300,000 tons.

PENNSYLVANIA

Anthracite

Wilkes-Barre—The Lehigh Valley Coal Co. on Aug. 1 put into effect a redivision of its districts in the anthracite field so as to better meet the heavy demands for fuel. Through the change more intensive effort is aimed at and greater concentration of activity on the part of officials, whose territoral units have been decreased. The rearranged divisions are grouped as follows: Lackawanna division: Sheldon Jones, headquarters, Wilkes-Barre; Luzerne division: George P. Gallagher, division superintendent, headquarters, Wilkes-Barre. Wyoming Division: John H. Heartter, division superintendent, headquarters, Wilkes-Barre. Lehigh division, headquarters, Hazleton, D. S. Wolfe, division superintendent, George Wood, division engineer. Hazleton Division: headquarters, Hazleton, H. W. Montz, division superintendent, C. A. Garner, division engineer. Delano division, headquarters, Mahanoy City, John W. Price, division superintendent, M. I. Terwilliger, division engineer. Girard division: headquarters, Lost Creek; F. H. Wagner, division superintendent; E. O. Holderman, division engineer. Locust Mountain division: H. J. Heffner, division superintendent. Blackwood division: Headquarters, Blackwood; C. N. Mortimer, superintendent.

Jeddo—Although not completely housed, the new Jeddo No. 4 Washery of G. B. Markle Co. is preparing coal. The gift of two war savings stamps to each employee engaged in its erection was much appreciated by the men.

Freeland—During August "movie" goers throughout the country will see a moving picture of the G. B. Markel Co. employee's community garden, a New York moving picture house having taken a view of it on July 29.

Port Blanchard—On July 25, No. 14 colliery of the Pennsylvania Coal Co. had the biggest day in the history of its production, loading 150 railroad cars of coal in 24 hr., shipping 6500 tons. Company officials and men are alike elated over this Hun-crushing achievement, ranking with the launching of a ship in importance to the nation at war.

Harwood—Lightning forced the local station of the Harwood Electric Co. out of commission on July 30, and as a result several mines which receive electrical power from the plant had to suspend operations. Work was resumed the next day.

Powder used in the mines in the Lehigh region, which in the past has been shipped over railroads to the collieries, is now being hauled by motor trucks. This being done to relieve the railroads and insure the prompt delivery of the explosives so as not to interfere with mining operations.

Duryea—After battling with a serious fire that originated in the William A. Colliery on July 27 for many hours the employees of the Lehigh Valley Coal Co succeeded in getting it under control, thus saving the mine from being flooded. The fire was discovered by a fireboss making his rounds, who immediately gave the alarm. The fire in the mine started in what is known as Bates plane, on the east side of the Lackawanna River, and affects 18 places. Considerable timber is used in that section of the mine and how the flames originated no one seems to know. The men were worked in teams of five and could only work 15 minutes at a time.

Coal Township—Disregarding the state law by opening a safety lamp in a gaseous section of the Henry Clay Colliery that he might light a cigarette, John Conovage, a miner, set off a body of gas and both he and his laborer were probably fatally burned.

Beaver Meadow—High water affected production in the mines of the Lehigh Valley Coal Co. in this region on Aug. 1. Miners were driven out of No. 2 workings when Sulphur Creek overflowed its banks and broke into the mine. Suspension was imperative, despite the national demand for fuel, and the situation was made worse for the Valley output when the Beaver Meadow silt dam burst and the column pipes at the Jeansville breaker gave way.

Pittston—In compliance with the decision that all draft boards can exempt all mining men of vital importance to the coal industry, the Pennsylvania Coal and Hillside Coal and Iron Companies have established a central city office at room No. 11, post-office building, this city, and from this point all matters in connection with drafted employees will be handled. It is the intention to investigate each case and only seek exemption for those whose positions cannot be easily refilled. No claims will be filed for exemption of those men who are known to be habitual loafers and men who lose time weekly.

Browntown—The settling of the surface in Cork Lane, which started on July 27, still continues and the working had not ceased on July 31. A large force of men were at work dumping in ashes and raising the Delaware & Hudson and Central R. R. of New Jersey tracks. The Delaware & Hudson passenger station is badly affected as the whole business has settled.

The settling covers a big area and is said to be caused by workings in the Hillside Coal and Iron Co.'s mines.

Hazleton—Many miners in the employ of the Lehigh Valley Coal Co. have objected to the action of that corporation in exchanging First Liberty Loan Bonds for those of the later issue paying higher interest. The men took out the bonds on the installment plan, through which deductions were made semi-monthly from their wages. The bonds are to be distributed the first of the month and when it became known that they are of the second issue requests began to pour in that these were not acceptable. The men want the honor of having the bonds of the first allotment as evidence of their patriotic spirit.

A special grade of anthracite leaves the Hazleton field each week by express for use in the Government factories making gas bombs.

Bituminous

Connellsville—Operators in the Connellsville region engaged in salvaging screened coke from ash dumps are well pleased with the recent fuel administration order fixing a maximum price for screened coke of $1 less than the maximum government price for selected foundry coke f.o.b. cars. The order means that any cleanly screened coke from ash dumps which can be used as domestic fuel can be sold at a maximum of $6 whether it is shipped for domestic use or not.

Punxsutawney—The Anita Coal Mining Co. has re-opened the old Horatio No. 2 mine of the Berwind-White Coal Mining Co. at Horatio near here. This mine was abandoned by the Berwind company 22 years ago on account of the high cost of getting the coal. The mine was a "wet" one and when a fault was encountered at the face of the main slope it was stopped. The Anita company has installed large pumps and retimbered the main heading the entire length, cut through the fault and opened a fine field of coal. Shipments will be made over the Pennsylvania Railroad.

Indiana—The first move toward bringing the general offices of the Rochester & Pittsburgh Coal and Iron Co. to this city was announced last week when it was stated that the electrical and mechanical engineering departments would be moved from Punxsutawney. The offices will be located in the Savings and Trust Building with the other offices of the company until the new office building is erected on Church Street.

Iselin—The Lowther Coal Co. has begun shipments from its mine near Clarksburg. The opening is on the Marock farm in the Pittsburgh gas seam. A Galion steel hoist and tipple has been installed at the foot of the incline plane. Shipments will be made over the Buffalo, Rochester & Pittsburgh Railway.

WEST VIRGINIA

Charleston — A new power unit will shortly be added to the plant of the Gauley Coal Co., this to be a 150 kw. plant. New motors, mining machines, etc., will be installed.

Welch—Another opening has been made by the Flat Top Coal Co. on the Welch seam above the present opening at its English plant. The same tipple is being utilized in connection with both openings.

Fairmont—After two years of almost constant activity in repairing the damage wrought by an explosion in 1916, mine No. 7 of the Jamison Coal Co. will probably be reopened by Sept. 1, according to an announcement made by J. M. Wolfe, superintendent of the West Virginia division of the company.

Clarksburg—W. M. Hornor, L. W. Garrett and other business men of this city have purchased a large tract of coal land owned by the late George M. Whitescarver of Grafton and are making arrangements to open several mines on the property acquired in the near future. The coal is situated on Coal Run a few miles south of Grafton.

Elkins—By November 1 the West Virginia Coal & Coke Co. expects to have its No. 12 mine near Bower, on the Coal and Coke Ry., in operation, work having been started on this development. No. 12 is to be a drift mine located about a mile south of Bower. The tipple is to be so constructed that shaker screens may be installed later, if desired, but immediate plans provide for dumping run of mine coal only. No. 12 mine is to work an area of approximately 500 acres of Pittsburgh coal. The mine will be worked on a retreating room and pillar system and in order to hasten development, a number of headings will be started from the outcrop, with an outside tram-road to the tipple. This will be abandoned when the inside hallway is connected through.

ALABAMA

Birmingham—The Birmingham Coke and Byproducts Co. announces that it will construct a battery of byproduct coke ovens and plant for the recovery of the byproducts of the coal, on a site near Boyles, Jefferson County, the new enterprise to cost in the neighborhood of $3,000,000. Work on this plant will commence as soon as materials can be assembled, it being the intention to have it ready for operation in about ten months. The Federal Government will render financial assistance toward its construction and has contracted for the output of coke, to be used at the air nitrate plants at Sheffield, and will also take the production of toluol, sulphate of ammonia, etc., for use in munition plants. The coal for supplying these ovens will come from the mines of the Majestic and Imperial coal companies, which are located a short distance from the site of the byproduct plant, and which are owned by the incorporators of the new company. The new firm is officered by Morris W. Bush, president; Horace Hammond, vice president and treasurer, and H. L. Morrow, secretary, all of Birmingham. A. P. Bush, of Mobile, is also a stockholder in the company.

KENTUCKY

Madisonville—It is reported that the small mines around Madisonville, which recently were cut off from the car supply by the Louisville & Nashville R. R. Co., are again securing cars.

Hazard—The Solar Coal Co., operating at the mouth of Willard Creek, has started loading out coal, shipping its first car a few days ago. The company has made improvements to the property which cost about $150,000. J. W. Estep is superintendent of operations for the company.

Sturgis—Fire breaking out in Mine No. 8, of the West Kentucky Coal Co., during the night of July 23, was not discovered until the morning of July 24, when it had obtained such headway that it became necessary to abandon the mine temporarily, and seal it up. It is stated that A. E. Anderson, who had charge of the pumps, was caught in the mine. Rescue parties were driven back by heat and gas. According to the most recent reports the fire was still burning, and the man's body had not been recovered. The blaze is thought to have started from a short circut.

OHIO

Mortonville—William B. McCracken of Lancaster, O., has leased from the Buckeye Coal & Ry. Co. a tract of 160 acres on the Toledo & Ohio Central RR. near Mortonville which will be developed at once by driving an entry. The seam is the usual No. 7. The product will be sold through the Buckeye Coal and Ry. Co.

INDIANA

Petersburg—The Globe Coal Company, operating a stripping mine at Sugar Ridge, four miles east of Petersburg, is building a sawmill plant and will saw lumber with which to build houses at a town site now being developed. A reservoir is being built and a railroad switch four miles long, with a bridge over Patoka River, is under construction. The company has appealed to the state for 50 more prisoners to work on the railroad grade. Already 52 men are on the job, in addition to scores of others employed in Petersburg and neighboring towns.

Carlinville—Work on the Standard Oil Co.'s No. 2 mine, northeast of here, has been stopped on account of the quicksand and water encountered at a depth of about 100 ft. It is expected that the abandonment will be only temporary. The plan is to resume work as soon as material to make the working conditions safe is received. In the meantime work is being pushed night and day at Mine No. 3, on the same tract. But for the difficulty encountered in Mine No. 2, work would not have been begun on No. 3 until No. 2 was completed. Mine No. 4 is expected to be ready for operation by Oct. 1.

Virden—Fossils of what are believed to have been prehistoric reptiles are being found in considerable numbers in the North Mine here. One specimen is 14 ft. long and 7 in. in diameter and has a wedge-shaped tail. Another is 6 ft. long and a third 3 ft. long, all of the same general characteristics. They are found between layers of rock and slate and the miners say that there are many visible in the formation.

Springfield—The first national convention of co-operative stores will be held here Sept. 25. Hundreds of delegates are expected. The sessions will be held at the hall of representatives. Governor Lowden will deliver the address of welcome. There are now more than 1000 co-operative stores in this country.

Duquoin, Ill.—Evan D. John, director of the Illinois Department of Mines and Minerals, announces the following itinerary for the Miners' Examining Board for August: Benton, Aug. 5; Harrisburg, Aug. 6; Herrin, Aug. 8; Duquoin, Aug. 10; Belleville, Aug. 12; Collinsville, Aug. 13; Litchfield, Aug. 14; Taylorville, Aug. 15; Danville, Aug. 16; Peoria, Aug. 17; Canton, Aug. 19; Springfield, Aug. 20.

Personals

Charles H. Eskridge, who for a number of years has been with the traffic department of the Chesapeake & Ohio R.R., has resigned to go to Ashland, Ky., to take up traffic work for the Ashland Iron and Mining Co. He made the change on Aug. 1.

Delwyn Wolfe, new superintendent of the Lehigh Valley Coal Co., will make his home at Jeanesville and have charge of a part of the present Hazleton Division, which has been divided with the present superintendent, Mr. Montz. Further changes in the operating personnel are expected.

J. H. Walker, president of the Illinois Federation of Labor, has announced his candidacy for international president of the United Mine Workers of America in the coming election on the second Tuesday in December. Mr. Walker lives in Danville, Ill., and is a member of Local No. 503, of Westville, Ill.

W. P. Burgess, engineer in charge of the Birmingham mine rescue station for several months past, has tendered his resignation to the government and will enter the service of the Bessemer Coal, Iron and Land Co. as superintendent of the Belle Ellen division. Mr. Burgess' successor has not been announced.

J. Fred Morlock, manager of the Morlock Collieries Co., has taken a controlling interest in the Victor mine at Strattonville, Penn., and will be made president of the company. He has also added several new business branches to his office operations at Buffalo, N. Y., among them the Tri-states Securities Co., for the handling of coal lands and other properties. Other coal mines are under negotiation.

Obituary

John R. Powell, pioneer squib manufacturer of this country, coalman and banker, died at his home, in Plymouth, Penn., on July 29, of uremia. Mr. Powell was born in Wales, May 6, 1847, and emigrated to this country in 1865. He erected a squib factory in 1878 and immediately began the manufacture of squibs used in mining throughout this country. The industry was a success from the start and has continued so during the intervening years. He secured his first patent in 1879. While Mr. Powell was interested in a number of coal properties and in numerous concerns which turn out mining supplies, it was in the squib business that he established a reputation, as the product of his factories is in use in every coal and other mines throughout the country. He is survived by his widow and one daughter.

Industrial News

Bluefield, W. Va.—The Pocahontas and Tug River districts produced during week ending July 27 the greatest tonnage ever mined, 473,896 tons.

Fairmont, W. Va.—Automatic scales are to be installed in all the mines of the Consolidation Coal Co. in this region in the near future.

Petersburg, Ind.—A Vincinnis coal company has leased 2500 acres of coal land, just west of Hesmer, six miles south of Petersburg and will open a railroad mine this fall.

McDowell, W. Va.—A number of new houses for miners are being built by the McDowell Coal & Coke Co., of which H. W. Rawson is superintendent, at its plant at this place.

Gillespie, Ill.—The Illinois Pyrite Co. has been incorporated with a capital of $25,000 to deal in pyrite coal and other minerals. The directors are William Watson, Fred E. Long and R. M. Depew.

Hyer, W. Va.—The Bens Run Coal Co. has been organized with a capital of $50,000 to mine for coal in the Hyer district. C. W. Karns, J. E. McDowell and J. P. Gates are the principal incorporators.

Louisville, Ky.—The Union County Mining Co. has been recently organized with a capital of $300,000 to develop coal properties in Union County. The incorporators are William Jarvis, Fred Reiss and R. F. Peters.

Armor, W. Va.—The Dempsey Coal Co., recently incorporated with a capital of $50,000, has perfected its organization and is planning for the immediate development of about 300 acres of coal properties in the Inez, Ky., district. Lewis Dempsey is president.

Hawesville, Ky.—The Central Kentucky Block Coal and Mineral Co. has been incorporated with a capital of $200,000 to operate coal properties in the Hawesville district. Harry Myers, Charles E. McDavitt, and Stanley Allen are the incorporators.

Louisville, Ky.—The Elkhorn-Jellico Coal Co., operating near Whitesburg, Ky., has secured 2,000 acres of land, and plans opening a large mine, and the construction of a considerable mining town, including schools, churches, moving picture theatres, etc. M. K. Marlowe and others are interested.

Columbus, Ohio—Numerous wrecks and derailments have occurred recently on the Kanawha & Michigan, arising from the use of heavy foreign equipment. As a consequence the production of the mines along the line has been greatly reduced. One day recently 10 derailments were reported.

Columbus, O.—Engineers employed in the mines of the Ohio Collieries Co., in Athens county, who quit in consequence of a dispute over wages, have returned to work, with the understanding that the difference will be adjusted by the Federal authorities. The strike caused the idleness of 1000 miners for one day.

Charleston, W. Va.—Out of 55 counties in West Virginia, coal is shipped into only 14, according to a statement recently made by State Fuel Administrator J. W. Barnes. Little, if any, coal is used in some West Virginia counties, such localities having an abundance of natural gas and where that is not the case, an ample supply of wood.

Buckingham, Ohio—A partnership known as Summers & Chilcote has been formed by J. H. Summers and C. M. Chilcote of Columbus and has purchased from Charles Schroeder of Buckingham a tract of 30 acres of coal and considerable worked over land. The purchasers will increase the output, which will be marketed through the Buckeye Coal and Ry. Co., of Columbus.

Charleston, W. Va.—Work will be started at once on extensive improvements to be made to the plant of the Dana Coal Co. at Dana. The mine to be operated was recently purchased from the Canadian Pacific Coal Co. and will be completely electrified. Work is to start at once. The yearly output of the company will be 100,000 tons when all improvements are completed.

St. Louis, Mo.—The City of St. Louis is storing coal at Baden and Bissell's Point. The quantity now stored is about 7000 tons. The city's requirements are about 300 tons a day. Last year this was obtained for $1.90 f.o.b. mine. The contract is still in force and is subject to renewal, subject to increase in freight rate, which will make the approximate cost, delivered in St. Louis, about $2.85.

Oklahoma City, Okla.—The Gunther Coal Mining Co. of Tulsa, Okla., has been organized with a capital stock of $150,000 for the purpose of developing some extensive coal land leases near that city. The charter of the company has just been filed in the office of Secretary of State Lyon, and shows that the incorporators are: S. A. Gaskill of Claremore, and A. C. Gunther and E. A. Vernon of Tulsa.

East St. Louis, Ill.—Fuel Administrator Baxter gave another hearing Tuesday to East St. Louis coal dealers who are asking permission to increase the retail price 5 cents a bushel. After several had testified that they could not do business at the present prices, H. H. Mott of the Granite City Cooperative Coal Co. testified that a good profit could be made at the present prices. The administrator has the matter under advisement.

Dallas, Tex.—This town is comparatively safe from dangers of a fuel famine this winter, according to local coal dealers, who say that never before have there been as many and as heavy deliveries of advance orders for coal. Practically all yards have been running as many wagons making coal deliveries through the summer months as are operated during the winter months, and nearly every family in Dallas has sufficient coal in the bins to last through the winter.

Elkins, W. Va.—Three Y. M. C. A. buildings for miners are to be erected by the West Virginia Coal and Coke Co., one at Bower, one at Norton and one at Mabie, the latter to be somewhat of a community building, since other companies there are to share their proportional part in the erection and maintainance of the building. As soon as final plans are approved, construction work will be begun. The same company is building a number of houses of the bungalow type for miners at its Harding plant.

Columbus, Ohio—It is announced by the Ohio Fuel Administration that the plan to have all large users of coal sign questionnaires, showing their needs and containing much other information, will be put into effect in the near future. After the questionnaires are filled out and sworn to inspectors from the Federal Administration will be dispatched throughout the state to see if any saving of fuel can be made. It is estimated that a saving of from 25,000,000 to 50,000,000 tons can be made by more efficient methods of firing.

St. Louis, Mo.—Disregard of State Fuel Administrator Crossley's order to make last Monday night the first lightless night was so general that Secretary W. E. Mount of the St. Louis Fuel Committee wrote to the chief of police next day requesting enforcement of the order. The observance was better Tuesday night. The excuse made for violations Monday night was that competitors violated it and that orders had not been received to extinguish the advertising and ornamental lights. Curtailment of street lighting is also to be enforced.

Harmersville, Penn.—Four hundred new houses are being built at a new mining town three miles from this place. The houses are five and six room cottages, thoroughly modern, with water, sewer, gas and electricity and equipped with fireplace and two chimneys. The mines are now producing from 500 to 700 tons of coal daily and when the new houses are completed and occupied there will be labor enough to produce about 5000 tons a day. A spur railroad connects the new town with Harmersville. The town has a commissary and two privately owned stores. The mine is a new one.

Cincinnati, O.—The Hamilton County Fuel Administration, anticipating a heavier demand for the general supply of fuel next winter than can be met, is urging manufacturers, public institutions, and other consumers entitled to special consideration and priority in the matter of coal supply, to have their names placed on the preferential lists of the National Fuel Administration, in order that they may be as fully assured as possible of a coal supply. This attitude is one result of the prospect that virtually all West Virginia coal will now be sent to the East instead of coming West for Cincinnati and other cities.

Howe, Okla.—The large coke ovens built by the Mexican Gulf and Transportation Co., near Howe, Okla., have resumed operations after having been idle for more than 15 years. This plant, containing 100 ovens, was abandoned when it was found unprofitable more than 15 years ago, and the plant had fallen into decay. It was purchased last December by the Howe-McCurtain Coke Co., of Howe, Okla., and since that time has been completely renovated and put in good order. This company also operates the coke plant at McCurtain, Okla. The company is now sinking its No. 4 mine on coal land near Howe, and will use the entire output of coal for coking purposes.

Columbus, Ohio—No more Pocahontas coal may be shipped into Ohio for domestic consumption. J. H. Frantz, Ohio fuel administrator for the state, thus announced recently upon his arrival from Washington, where he spent most of the week conferring with the fuel administration. This kind of coal is to be reserved for the navy and for the production of byproducts in coke ovens. Mr. Frantz also announced that western Kentucky had been added to the Ohio coal zone and that coal from that section could be shipped into Ohio. This coal will be chiefly for Cincinnati, Hamilton and Dayton and contiguous territory. Hocking coal and West Virginia splints will be available for the Columbus territory.

Rockville, Ind.—T. F. Gaebler, fuel administrator of Parke County, is making a special campaign to save as much timber as possible for fuel purposes and thereby to relieve the shortage of coal. Mr. Gaebler is interesting farmers in cutting and hauling "dead and down" timber which ordinarily goes to waste. There are 65 coal mines in Parke County and with the burning of thousands of cords of wood, the county will be able to ship many more tons of coal than usual. Mr. Gaebler will refuse to issue permits to farmers to buy coal unless the farmer is able to show that there is no wood on his farm going to waste. Martin Rehfuss, Jr., fuel administrator of Marion County (Indianapolis) is following the same plan.

Uniontown, Penn. — Twelve thousand acres of the best quality of coking coal in Greene County, situated in Cumberland and Jefferson Townships with a frontage along the Monongahela River, recently passed into the control of the H. C. Frick Coke Co. and $7,000,000 was distributed to creditors of J. V. Thompson with the delivery of the deeds in the so-called Frick deal. This is the first tangible result of efforts made to liquidate the vast Thompson estate since the financial crash in January, 1915. Mr. Thompson's interest in the deal was 7,366 acres and the trustees were given $3,797,472.25 for distribution to mortgage holders. Other deals are now pending, one being for the sale of 5,000 acres of "back" coal for $2,000,000. The Frick deal was tangled in litigation for more than two years before the deed was passed.

St. Louis, Mo.—Barge line freight service between St. Louis and New Orleans will be in operation on a weekly schedule on and after Sept. 1, according to an announcement of A. W. Mackie, manager of the Mississippi River section of Federal Barge Lines, on his return from a trip along the lower Mississippi with M. J. Sanders, federal director of waterways. The Government has acquired 40 steel barges and will have four or five steamboats to tow them. Construction of equipment will be pushed and as soon as possible a twice-a-week schedule will be put into effect. The plans call for towboats with motors of 2000 hp. and over and barges of from 1000 to 2000 tons capacity. Mackie expects that a combination rail and water rate will be made which will enable shipments to be made over both transportation systems.

Fairmont, W. Va.—The record of loading coal and coke on the Monongah division of the Baltimore & Ohio R.R. during the month of June as compared to the three preceding months has been completed by F. J. Patton, secretary of the coal operators' association, and shows:

	East	West	Total
June	18,363	5,375	23,734
May	17,030	4,972	22,002
April	15,543	4,896	20,439
March	15,493	3,060	18,553

The figures shown above include 805 cars of coke and 852 box cars loaded by team track haulers. There was a total of 22,077 cars loaded at tipple mines during June which is 51.16 of the rating of the region. Mr. Patton has a list of 225 team track mines in the Fairmont district and is not certain that he has them all.

Philadelphia, Penn.—A "get-together" meeting of anthracite operators was held recently with the anthracite committee of the U. S. Fuel Administration. The object of the meeting was to "check up" on the anthracite output with a view to increasing it if possible. Operators, representing companies shipping to all destinations permitted by the Fuel Administration, had the situation explained to them. Special stress was placed on the companies seeing to it that consignees empty cars the same day as received, if humanly possible. A speeding up process was urged that would enable the railroads to return "empties" to the mines as quickly as possible. The operators agreed to follow all plans and suggestions likely to expand production. They wanted it understood that if it is in their power and no further depletion of the mine-worker's forces occurs by draft and other causes, they will do their best to see that retail dealers get their advance orders filled to the last ton by Nov. 1. They figured that no really cold weather will come before that date to entail any fuel hardship on the consuming public.

MARKET DEPARTMENT

Weekly Review

Production High, Car Supply Good and Lake Movement Heavy—Output Well Up to Present Requirements, but Consumers Somewhat Apprenhensive for the Future.

PRODUCTION has dropped off slightly from the high records of the recent past. This diminution in the output is, however, not particularly serious and if the present rate can be maintained there can be no such suffering for want of coal as the country experienced last winter.

The car supply has been generally good, many localities receiving full rating. In other regions some mines and some districts have been served with only enough cars for a few days' work per week. Such cases have, however, been the exception rather than the rule.

The coal supply problem is still one of transportation rather than production. It has been fairly well demonstrated that if the mines are supplied with cars they are, as a general rule, able to turn out a heavy output and one well up to the needs of the country. One or two roads have had such heavy traffic in coal that much congestion with some wrecks and derailments has resulted.

In the West and Middle West production is well up to the demand and certain grades and sizes are still selling below the Government schedule. In the East, however, particularly along the Atlantic Seaboard, demand is strong and dealers are unable to accumulate any stocks except of one or two of the smaller sizes. Of these there is now a slight surplus but it is questionable if this would be maintained were bituminous coal available with which to mix the fine anthracite.

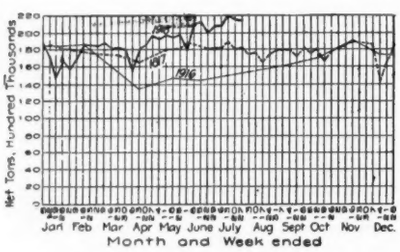
The Lake movement has been heavy but receipts at the Upper Lake docks are still behind the Government schedule. Every effort is being made to keep the shipments to the Northwest by water at a maximum as it is believed that by so doing all requirements of that region can be taken care of by the close of navigation.

One incident of the week, small in itself but which may be far-reaching in its results, was the closing of four small mines in the Pittsburgh district because they shipped dirty coal. It is evidently the intention of the Fuel Administration to tolerate no such practices in this respect as caused such justifiably adverse criticism of the industry as was heard last winter.

Particularly in the East no one is sure exactly "where he is at." Although receipts are about ample to present requirements it is recognized that the future is uncertain and in many quarters considerable apprehension is entertained.

WEEKLY COAL PRODUCTION

The output of bituminous coal in the United States declined approximately 1 per cent. during the week of July 27. The production (including lignite and coal coked) is estimated at 12,802,000 net tons, a decrease compared with the week preceding of 121,000 net tons but an increase over the corresponding week of 1917 of 1,471,000 net tons or 13 per cent. The average daily production is estimated at 2,134,000 net tons as against 2,154,000 net tons during the week of July 20 and as compared with 1,889,000 net tons during the week of July 27, 1917.



The present week's output while 343,000 net tons or approximately 3 per cent. in excess of weekly requirements of 12,459,000 net tons during the balance of coal year to make up the deficit to date, is nevertheless 1,300,000 net tons or 9 per cent. behind the weekly requirements during the balance of the summer months to make up the deficit to date. The difference between the summer requirements and those specified for the balance of the coal year is accounted for by the necessity to ship practically all lake coal during the summer months and 50 per cent. more tidewater coal to New England during the summer than in the winter. Production to date is approximately 15,000,000 net tons behind schedule, and in order to meet all requirements as outlined by the U. S. Fuel Administration it will be necessary that the output of coal during the last of the summer months, August and September, be equivalent to over 14,000,000 net tons per week, 714,000 net tons or 5.5 per cent. in excess of the record week to date.

Anthracite shipments increased slightly during the week, the total movement amounting to 40,942 carloads.

CARLOADS OF COAL ORIGINATING ON PRINCIPAL COAL-CARRYING ROADS

	Week Ended: July 6	July 13	July 20	July 27
Bituminous shipments, 123 roads.	180,090	235,291	229,770*	227,893†
Anthracite shipments, 9 roads...	31,493	42,419	40,664†	40,942

* Revised from last report. † Subject to revision.

Beehive Coke — Production of beehive coke in the United States declined slightly during the week of July 27. Preliminary estimates place production at 617,000 net tons, an average per working day of 103,000 net tons as against 105,000 net tons per working day during the week preceding.

The principal operators in the Connellsville, Greensburg and Latrobe districts of Pennsylvania report production during the week of July 27 at 348,180 net tons and operation of the plants at 77.5 per cent. of present capacity as compared with 76.6 per cent. during the week preceding. Yard labor losses amounted to 19.4 per cent. and losses of time due to all other causes to 3.1 per cent.

The same operators produced 168,650 net tons of coal during the week of July 27.

Byproduct Coke—Working conditions of the byproduct industry in the United States varied but little during the week ended July 27. The operators of the country produced 517,664 net tons, working their plants at 91 per cent. of their present capacity, as against 91.2 per cent. during the week preceding. Material increases occurred during the week in Maryland and Massachusetts, while Kentucky was the one state reporting a material decrease. The plants of three states, Massachusetts, Tennessee and Washington, were operated to capacity.

BUSINESS OPINIONS

Bradstreet's—Further marked extension of government control of production, of distribution and of labor, more urgent demands upon already full capacities for still greater efforts, some further shifting of the stream of war orders to western points from congested eastern areas, stimulation of fuel production in greater volume, a large, at some points, record volume of midsummer wholesale and jobbing distribution, fair to good retail buying, mail-order business in excess of 1917, improved collections, some shading of food crop estimates and a decided lowering of cotton condition due to drought in the southwest, a dull stock market, firm and even stringent money, high record bank clearings, close to low record failure totals, and a slightly quieter labor situation are the salient points in a week unusually full of important commercial and industrial happenings.

Dry Goods Economist—Cotton and cotton price fixing have engaged the attention of textile men this week to an unusual degree. The announcement in a prominent commercial paper of a percentage of 77.4 of the cotton crop on Wednesday was followed on Thursday by the Government's estimate of 73.6. The announcement of the Government's figures was followed by a raise in raw cotton on the New York Exchange of nearly 1c. per pound—or, as it is usually expressed, 95 points—in only a few moments. Analyzed, the figures mean that the estimate of Wednesday indicated a crop of 14,500,000 bales while the Government's estimate indicated one of 13,619,000 bales, both estimates being exclusive of linters which should be from 1,400,000 to 1,500,000 bales additional.

American Wool and Cotton Reporter—One favorable development in the wool market is the interest being taken in the purchasing of foreign wools, and in the regulation of the available supply. If agreements can be made and a satisfactory system devised it is possible that domestic manufacturers will be alloted a certain amount of wool which can be used for civilian purposes. The supply of wool seems sufficient, but limited by the existing shipping conditions, and possibly other causes.

Marshall Field & Co.—The wholesale distribution of dry goods for the current week is in excess of the large total of the corresponding week in 1917. Road sales, while light, are in excess of the same period of the previous year. Not quite as many customers have been in the market. Collections continue excellent, being larger than for the current week of last year.

Atlantic Seaboard

BOSTON

Average stocks in New England are but six weeks. Most buyers in cheerful mood, but situation hardly warrants it. Receipts

are maintained at July level. Railroad requirements to be handled from Washington. Wagon coal helps out the volume. Continued favorable shipments from Baltimore. Congestion at unloading berths here only temporary. Demand sags off for screenings. Anthracite receipts all-rail nearly up to quota, but disappointing at tidewater.

Bituminous—In well-informed trade circles there is an undercurrent of pessimism. Receipts have been favorable the past month and production has been maintained on an encouraging basis but this is a season of minimum consumption and maximum deliveries and our receipts should continue at their present level. No coal man in touch with the situation feels that this is possible for more than a few weeks longer.

The statistical section of the Fuel Administration at Washington regards its tabulation of receipts so complete that it is warranted in using it as an absolute guide. In other words, unless Washington has somehow found out that a plant exists not only is that plant not to receive coal but fuel for New England is to be allocated on the basis of such returns as have been made. Meanwhile, it is plain that heavy demands from over seas and from Government operations elsewhere will have to be met, and there is a turning toward New England as an area where a large tonnage can be spared. There is no shortage here of bituminous for current needs, but there is a serious shortage of storage coal which is usually accumulated during the summer months for winter use. Average stocks only cover about six weeks, and yet there are serious plans to divert coal from New England to requirements elsewhere.

The railroads, large utilities and the big textiles are far in arrears as compared with 1917 when, up to Aug. 23, coal was coming forward freely. If shipments to New England are now to be reduced instead of being built up, it will go hard with us next winter.

A large number of buyers were so influenced by the volume of coal that came forward in July that some are actually cautious about making purchases. There are plenty in New England today who are inclined to refuse coal. This, however, is no reason for the Fuel Administration to be shortsighted. Mr. Storrow made it plain at a conference in Washington last week that the situation would not permit any cutting of the allotment agreed upon last March.

At the five gateways receipts of bituminous thus far in August are about on the July level. The daily average for last month was 533 cars commercial and 153 cars railroad fuel or 686 cars in all. The number of box cars now being sent forward should increase during the next few weeks, although soon the enlarged demand for bunker and transport use will make itself felt keenly.

New England was depending upon increased receipts via the New York piers but obviously the prospect there is not hopeful. Plans of the usual distributors through ordinary trade channels have been considerably upset by the increased movement via Baltimore, thereby reducing the New England tonnage transshipped at New York. If now the Baltimore loadings for New England are also to be reduced there will be serious embarrassment.

Railroad requirements it is understood are to be handled directly from Washington, hereafter. This would seem like absent treatment, and already some of the results can be observed. Naturally the local fuel authorities are glad to be relieved of railroad requirements and to have the responsibility placed elsewhere, but this is hardly a prudent measure, as a matter of administration.

It is not known exactly to what extent wagon coal has been sent forward. Mr. Storrow's office saw to it that ample consignments were put on file and if the movement of coal in this equipment can be built up to 600 cars weekly it will be a distinct help especially to smaller plants and to retail dealers.

At Hampton Roads the coal available is sufficient to care for the bottoms that report and latterly there have been no serious cases of detention. It is probably only a matter of days when coal will be switched west and to the byproduct plants from which it was diverted a few weeks ago to relieve shortages at the piers. Aside from routine shipments on contract it is extremely difficult to arrange for cargoes.

Baltimore clearances still make a favorable showing for New England. Coal has been ordered to Curtis Bay to Mr. Storrow's order in considerable volume and steamers are regularly taking it on allocations furnished by him. Hampton Roads is thereby relieved, measurably, although a large tonnage of the coal ordered to Curtis Bay is diverted from shippers who would normally apply it to contracts via New York piers.

Some notice has been taken of delays in handling steamers at this end. Much of this is due to lack of berth room for ships bringing supply coal to the Boston & Maine R. R., a great effort having been made to send it in sufficient volume to give the needed reserve. Most of the delay has now been corrected, and where necessary the ships have been discharged at other berths for other consumers.

Anthracite—As a natural outcome of heavier shipments of bituminous the buying power for steam sizes has sagged to a marked degree. All-rail deliveries are still in large proportion, the July daily average having been in excess of 180 cars but there is decidedly less inquiry. Considering that the use of screenings and the buckwheats is new to most steam plants and the difficulty of getting improved stokers suited to the purpose, New England consumers show a good record in this respect. When bituminous shipments fall off again there will doubtless be a revived demand for steam anthracite.

The July average receipts all-rail of domestic sizes were well in excess of 600 cars. At Tidewater the movement is still slow and it is hard to see how the 1916 basic tonnage can possibly be caught up with for the coastwise towns even with the box cars that are being forwarded all-rail.

The whole question of distributing the increased quota seems much tangled and even recently there was no settled policy concerning it. Awkward questions such as the tonnage actually loaded aboard barges late in March, 1916, and sent to small towns where one cargo is a large proportion of a season's tonnage are not yet satisfactorily answered.

NEW YORK

Situation is easier, but apprehension continues. Anthracite dumpings increase, while bituminous decreases. Encouraging reports come from the mining regions. Bituminous moving freely but no opportunity for storing. Car supply in central Pennsylvania reported as slow. Complaint made of slow shipments.

Anthracite—The situation is easier but continues to occasion concern. Unfilled orders are much in excess of receipts and the trade fears that nothing short of a miracle can prevent a shortage of fuel next winter. Coal is moving easier and the cars dumped at the various local tidewater docks during the seven day period ended Aug. 2 show a substantial increase over the previous week.

State Fuel Administrator Cooke is getting the machinery of his office into working order and New York can expect to receive its full share of fuel now.

While the mine workers are doing everything within their power to maintain production, conferences have recently been held by representatives of the operators and mine workers at which methods to increase the output were discussed. The operators have also discussed among themselves further plans for the proper distribution of anthracite and they have agreed to follow all plans and suggestions that are likely to expand production, and have promised that if there are no further depletions of the labor forces, that dealers will get their orders filled by Nov. 1. Unless the Federal authorities step in it is likely that the army of mine workers will be further reduced 1000 in August when the next draft call is made, that number of mine workers being included in the call of men from Pennsylvania.

The migration of mine workers to other industries is expected to stop now because of the supervision of the labor situation by the Federal Employment Bureau. This bureau, it is expected, will prohibit war industries from combing the mining regions for men. Reports received here show that notwithstanding the labor difficulties, individual collieries are reporting record daily shipments.

Conditions in the district included in this market show some improvement. Coal is moving easier and dealers are slowly cleaning up their outstanding orders. In Manhattan Borough the retail dealers are optimistic. There is a heavy demand for both egg and stove, while chestnut and pea are easier. Efforts made to take care of the small outlying towns along the railroads are not so successful as it was hoped they would be. The residents of one town within commuting distance of New York complain that not all of the consumers there have yet received one-third of their requirements, although it is along the line of one of the largest coal-carrying roads.

The steam coals remain strong. Buckwheat No. 1 is practically out of the market, and few shippers have any to offer. Rice coal is also scarce. Barley and culm are much easier. Retail dealers are well stocked with these two sizes, but are short of bituminous to sell with them.

During July there were dumped at the New York Tidewater docks 31,284 cars of anthracite, as compared with 30,719 cars dumped in June, an increase of 565 cars. For the seven days ended Aug. 2 there were dumped 7609 cars as against 7054 cars, for the previous week, an increase of 555 cars.

Current quotations, per gross tons f.o.b., tidewater, at the lower ports, are as follows:

Circular	Individual	Circular	Individual
Broken..$6.75	$7.50	Pea.....$5.20	$5.95
Egg.... 6.35	7.10	Buck... 5.10	5.90
Stove... 6.60	7.35	Rice.... 4.65	5.10
Chestnut 6.70	7.45	Barley.. 4.15	4.30
		Boiler.. 4.60	

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates. Prices for buckwheat, rice, barley and boiler are not fixed by the Government.

Bituminous—Although dumpings at the New York Tidewater docks for the past week fail to show any increase, conditions are easier. Coal is moving in better shape and consumers are able to get plenty for immediate needs but there is no surplus. There were dumped during the week ended Aug. 2, 6619 cars of bituminous as compared with 6922 cars during the previous seven days, a decrease of 303 cars. During July reports of the regional director of railroads show that 30,372 cars were dumped here as against 31,129 cars dumped in June, a decrease of 757 cars.

Reports of the Tidewater Coal Exchange show an increase in the number of cars of bituminous dumped for commercial and bunker purposes. Last month 30,745 cars of coal were dumped, as compared with 28,913 cars dumped in June; 27,929 cars dumped in May and 23,839 cars in April. The average daily number of cars discharged during the same period was Apr., 795 cars; May, 931 cars; June, 963 cars and July, 1138 cars.

Reports received here from the mining regions indicate a good car supply in West Virginia, with labor satisfied and willing to work to keep up production. In central Pennsylvania cars are reported as not up to requirements. Labor is short, but efforts are being made to keep up production. Representatives of the fuel administration are continually at work checking up the working time of each miner and asking those who seem to be lax to sign a card promising to do their best to keep up production.

Reports prepared by the Central Pennsylvania Coal Producers' Association show that there has already been a loss of 6.3 per cent. in the number of miners, loaders, cutters, and scrapers in central Pennsylvania and that if the draft boards continue to call to the colors the skilled employees about the mines, who are in Class 1 and those who registered on June 5 of this year, there will be a further depletion of 4.3 per cent.

There is much complaint of the failure of the railroad companies to pay their bills promptly.

Bunker coal is moving quickly and shipping is not delayed. In connection with the formation of the new pools Nos. 71 and 72, it has been announced that all coals in the former Pool No. 9 in classifications "C" and "D" are changed to Pool No. 71 when the coal is used for bunkering purposes. Producers shipping their coals to Pool No. 10 have been allowed the privilege of shipping to Pool No. 72 when the coal is consigned for bunkers. When coal is shipped for commercial purposes Pool No. 10 applies.

This market is comparatively clear of free coals, nearly all of the shipments coming here being for regular customers.

Current quotations, based on Government prices at the mines, net ton, f.o.b. tidewater, at the lower ports, are as follows:

	Mine Gross	F. o. b. N. Y. Gross
Central Pennsylvania:		
Mine-Run, prepared or slack.....	$3.30	$5.45
Upper Potomac, Cumberland, and Piedmont Fields:		
Run-of-Mine.....	3.08	5.23
Prepared.....	3.36	5.51
Slack.....	2.80	4.95

Quotations at the upper ports are 5c. higher.

PHILADELPHIA

Anthracite situation unchanged. Egg coal grows easier. Full deliveries allowed. Pea coal somewhat freer. Stove and nut tight as ever. Buckwheat piling up in retail yards. Dealers compile more information. Steam stocks accumulate. Tide shipments rerouted. Bituminous car supply hit by change in rating. Fair shipments received.

Anthracite. The general situation continues without marked change. The dealers are in distress, due chiefly to the shortage of stove and chestnut. Whenever any stock of coal can be found it is without exception egg. Most of the yards are empty because the coal received is invariably delivered too promptly to allow any accumulation. Philadelphia proper has always been a poor market for egg coal and some dealers have already delivered the full two-thirds of all the orders they hold for this size. This week some dealers had been given permission to complete their orders calling for egg coal. It was an easy matter to convince the authorities that there was no wisdom in allowing their trucks to stand idle while they had coal in their yards and a place to put it. This condition is not general, for in the suburbs where the demand for egg is always heavy the dealers are still begging for it.

Pea coal, too, is not as scarce as it was and at least one large company reports being comparatively easy on it. The great demand for pea coal never comes until cold weather. On account of its price it has always been in great demand in the small homes. In other years the spring reduction never affected pea size, and the consumers as a whole have not as yet been educated to store it. There will be an active demand for this coal before the year is out and dealers are anxious to secure every possible car of it.

One firm reports a peculiar situation on No. 1 buckwheat. It has an oversupply and many of its steam-coal buyers are pleading for it. The fuel authorities are unwilling to have more than one day's supply furnished at a time to this trade. In the meantime the coal is piling up in the retail yards. While the dealers are anxious to use their equipment and store the coal in their customers' bins for next fall and winter use, the fuel people seem to think it the better policy to hold it in case of a shortage of the domestic sizes at that time, when it could be used as a substitute.

This week the dealers received another request for information from the local fuel authorities. They must advise promptly the number of tons of family coal they delivered during July; the number of tons on hand, and the number of tons of prepared sizes for which they have unfilled orders. In the letters they are advised that the information desired is most important, "particularly to learn how much coal is necessary to bring into Philadelphia during the next 60 days to take care of unfilled orders." To the uninitiated this would appear encouraging, and while the dealers will furnish the desired figures, they are none too optimistic of much help resulting.

While the dealers still appear anxious over the general situation there continues to be a note of optimism among the authorities, who feel they have the situation well in hand. A recent move that will help the local situation is the decision of the army authorities to use nothing but bituminous coal in the Southern army cantonments. This, of course, will release a heavy tonnage for the strictly anthracite domestic territory.

The lightless night plan is now in full working order, although it has been modified somewhat as to the curtailment of street lighting, in that it was found advisable to allow the use of more lights than was first thought necessary. There was also one prosecution of a store owner for violating the rule against show-window lighting.

All the shipping companies this week were checked up by the authorities on their shipments of gas coal to the New England territory, and those who had fallen behind the allotment of broken coal were directed to make it up at once.

The new ruling of the railroad administration requiring spot payment for freight did not appear to ruffle the retailers in the least. It did, however, have a tendency to cause the dealers to make their credit plans stricter than ever.

In the steam trade the demand does not diminish. There is no free coal of any size except culm to be had. Heavy shipments of this size continue to New England—so heavy, in fact, that some speculation is aroused as to whether it is not being overdone. Old-time users of buckwheat in this market, especially those on war work, are accumulating heavy stocks of this coal. Good tide shipments have also been resumed. A plan to expedite the movement of tide coal has just been put in force whereby a saving in time of 36 to 48 hr. is effected. This has been accomplished by rerouting coal via the Pennsylvania R. R. Schuylkill Division, where practically all passenger traffic has been withdrawn.

The prices per gross ton f.o.b. cars at mines for line shipment and f.o.b. Port Richmond for tide are as follows:

	Line	Tide		Line	Tide
Broken	$4.90	$6.25	Buckwheat	$3.40	$4.45
Egg	4.50	5.85	Rice	2.90	3.80
Stove	4.75	6.10	Boiler	2.70	3.70
Nut	4.85	6.20	Barley	2.40	3.30
Pea	3.45	4.70	Culm	1.25	2.15

Bituminous—The shippers of bituminous coal have been greatly upset by the change in the car allotment as adopted by the Pennsylvania R. R. in central Pennsylvania. Here they have gone back to the old system of rating based on the number of working places in the mines. As a consequence may mines have had far from sufficient cars, while others have had more than they can load. On the whole the average has been 60 per cent.

This change seems unfortunate just at a time when things had begun to run smoothly and a record tonnage was being gotten out. So far local industries have not suffered for want of fuel, although the storage plans of many have been upset inasmuch as they have received far below the average they have been getting for the past several weeks.

BALTIMORE

Strong appeals for relief in short bituminous situation here met by promise of 60 cars of soft coal for most urgent needs. Hard coal men preparing figures to demonstrate need of greater shipments.

Bituminous—While a fairly good tonnage of soft coal has been moving into the Baltimore district as viewed from the standpoint of railroad figures, the major part has been definitely destined for the use of war industries and shipping account, and some urgent industrial needs here have been neglected.

Slowly but surely the request list for first shipments as prepared by the Maryland Fuel Administration and forwarded to the district representative at Cumberland has grown beyond the shipments on that account. For several weeks the demands of the canners have piled up as the packing industry found that it could not get the coal it had contracted for.

The appeals of the state fuel administrator to the district representative were not met, and finally the local fuel administration put the case up to the national fuel body. It was pointed out that great losses of the fruit and vegetable pack had already taken place or were threatened, and on Wednesday, after days of delay, a promise came of 60 cars to be diverted to the fuel administrator here for the packing and other emergency business needs.

Many industries here are at present living practically from hand to mouth, and all thought of stocking up by other than war-preferential industries during the summer has been abandoned. Some of the preferential plants have a three months' supply or more on hand and are now getting regular shipments. It is thus only the non-preferred branches of business that suffer for the time while heavy movements of soft coal are forwarded to New England and the Northwest. That all coal wanted preferentially does not always come through has been demonstrated recently several times when vessels have been held to await finishing of cargo. A number of these were preferential loadings for the account of Starrow, of New England.

Anthracite—With monthly deliveries of hard coal falling behid past years' averages, the anthracite dealers are spending much time in figuring. It had been hoped to deliver two thirds of all orders before October, but this is now practically despaired of in view of the fact that the monthly receipts here are less than 60,000 tons, while there is 300,000 tons estimated still on the books of dealers undelivered and a considerable amount of orders applying for addition to that list.

In order to get down to "brass-tacks" so to speak the Baltimore Coal Exchange has asked all hard coal dealers to file reports of receipts of fuel so far since April 1, amounts of deliveries to customers, amounts still on the order books, estimates of business to come from old customers, promises of delivery from mine connections, etc., in order that a general estimate of needs of Baltimore can be prepared. With these facts the trade expects to be able to give the consuming public the information which it desires, and at the same time be prepared to appear before the fuel administration and urge additional shipment. War industries are eating deeper and deeper into the hard coal apportionment here, and this complicates the situation.

Lake Markets

PITTSBURGH

Heavy Lake shipments are under the mark. Four mines closed for shipping dirty coal. Regulations for wagon mines.

Shipments of Lake coal in July from the Pittsburgh district are estimated to have exceeded only slightly the original quota of 1,300,000 tons, although an effort was made to exceed that amount by as large a quantity as possible. Stocking of rail coal has been under ban since early in July. A few consumers, who are not on the preference list, have been cut off from supplies.

R. W. Gardiner, fuel distributor for the district, has closed four mines on account of their shipping dirty coal. These mines will open when inspectors are detailed to indicate precisely what coal shall be mined and what left. While the number of inspectors is not sufficient as yet to make periodic inspections of coal as shipped it is believed the closing of some offending mines will have a salutary effect upon others and thus secure a general improvement.

The local fuel administration has prescribed prices for wagon mines with a view to encouraging their operation. Manufacturers or large consumers making blanket contracts to take the entire daily output of the mine are given a maximum price of $2.45 or 10c. above the standard price. Hospitals, office buildings and the like are given a price up to $2.75, while to domestic consumers the price is set at $3 maximum, all these prices being at the mine platform. Haulage charges in addition are prescribed, 70c. per ton for the first mile or fraction, up to $2.15 for between 7 and 8 miles.

Essential consumers are being well supplied with rail coal according to their requirements and there is some stocking of truck and river coal. Transactions in the open market are light, it being difficult to secure coal except through action by the authorities. Prices remain: Slack, $2.15; mine run, $2.35; lump, $2.60, per net ton at mine, Pittsburgh district, with 15c. brokerage allowed to be charged in addition by brokers.

BUFFALO

Market tranquil, considering former unsettled conditions. Canadian trade quiet, especially bituminous. Much low-grade anthracite sold there. Lake shipments fair.

Bituminous—The supply would be sufficient but for the resumption of late of preferential orders, sending coal to points out of the regular course and leaving consumers short when they thought they had plenty. While these orders come from a larger survey of the situation than the local shipper is able to make they disturb the trade badly sometimes. Orders of coal to New England do not have a quieting sound and it is hoped that they will not be as numerous as they were last year.

At least one local shipper is taking the view of the case that tends to reduce the general feeling of uneasiness to the minimum. He finds that Canada has a good supply of bituminous and that Buffalo and New York state are pretty well taken care of. This means that a good many consumers have stocked up well and in Canada the good supply of bituminous has enabled consumers to buy it as a substitute for anthracite. This has also been done to some extent in this state.

The tendency to accept anything that looks like coal is said to have enabled many small producers of anthracite to ship into Canada what is called mine run, which is said not to have been picked over at all, but is full of impurities and sometimes so poor in quality that nobody will buy it. It was said that the authorities were preparing to stop the shipping of such coal, but some still appears to escape the inspectors.

Jobbers are not gaining much on their trade. They find it hard to get any coal and the prospect is not good for a larger surplus. All the average jobber can now hope to do is to keep along, meet expenses and be in readiness for trade resumption.

Bituminous prices are still hard to figure out, but the average jobber makes them out to be $4.65 for thin-vein Allegheny Valley, $4.45 for Pittsburgh lump, $4.20 for Pittsburgh mine run and slack, $5.85 for smithing and $6.20 for cannel, though cannel differs somewhat as to the region it comes from; all prices f.o.b. Buffalo with jobber's profit added.

Anthracite—The movement westward is not heavy. The city demand is active and it will continue so till the last cellar is well supplied, which is not likely to take place this season, and some will do well if they get a supply in any quantity during the winter. At the same time it is not believed that any severe shortage will occur. It is not expected to provide a large amount for consumers to carry several months, but all legitimate needs will be met.

The shipments by Lake are not equal to last season, but are of fair amount, being for the week 95,800 tons, of which 15,900 tons cleared for Chicago, 28,900 tons for Milwaukee, 7500 tons for Waukegan, 7300 tons for Green Bay, 600 tons for Mackinaw, 3500 tons for Ashland and 8000 tons for Port Arthur.

CLEVELAND

Bituminous shipments have decreased, due both to a reduced car supply in southern Ohio and to a more extensive diversion of coal to the Great Lakes. Lake shipments for the past week have been at the rate of 1,100,000 tons. The close of July, however, sees shipments 999,906 tons behind the Fuel Administration's schedule.

Bituminous—Receipts of soft coal during the past week have decreased somewhat. In accordance with the Fuel Administration's speeding-up plan for Lake shipments, and due partially to a lower car supply, the bituminous available for industrial and domestic consumers has fallen short of requirements.

Industrial stocking may virtually be said to be at an end. Retail dealers are considerably deferred on orders, though it is declared that the amount of coal householders have laid in for next winter is large. It is estimated that more than 50 per cent of the domestic coal that will be consumed in Cleveland next winter already has been stored. Some northern Ohio cities are reported to have more than 90 per cent. of their coal requirements already in.

The car supply in the No. 8 district has fallen off somewhat in the past week, though not to the extent production has suffered. Car supply and available labor have just about balanced.

No shading of the government maximum prices on bituminous coal is reported in this territory, nor is contracting flourishing even though the Fuel Administration has lifted the ban on contracts running longer than one year.

Operators here would not be surprised to see a fair amount of Ohio coal go east into Pennsylvania after the Lake season ends in order to release more Pennsylvania coal for New England.

Anthracite—On account of the zoning system practically no anthracite is coming through to this territory.

Lake Trade—July figures on bituminous shipments to the Northwest, which have just been announced, place the movement at 4,038.795 tons, as against the 4,900.000 tons called for by the schedule of the Fuel Administration. This puts the lake trade exactly 999,906 tons behind the schedule up to Aug. 1. However, at the rate coal has been moving the past week this is only one week's tardiness.

The following are detailed figures on the Lake movement to July 15—no comparisons up to Aug. 1 yet being available—which have been prepared by the Coal and Ore Exchange, of Cleveland, which is in charge of the lake pool this season:

	1918	1917	1918 Ahead of 1917	1918 Compared with Schedule
To April 30th..	861,157	651,479	209,678	—638,843
May....	2,970,326	2,428,118	542,208	+470,326
June....	3,429,716	3,250,149	179,567	+29,716
To July 15th..	1,791,320	1,780,409	10,911	—470,680
Total to July 15	9,052,519	8,110.155	942,364	—609,481

DETROIT

Distribution of coal to domestic consumers is still being retarded by scarcity of stock. Lake shipments are being increased.

Bituminous—With receipts of bituminous made up chiefly of mine run, local jobbers complain that it is not easy to get coal that is acceptable to household consumers. The incoming shipments, it is said, include little domestic lump or other prepared sizes. As most of the domestic buyers, who heretofore have used anthracite have been holding off through the earlier months of the year in the hope of getting their favorite fuel, the distribution of next winter's supply is not what it should be at this season of the year and is being further retarded by scarcity of supply, dealers say, since the date when regulations of the state fuel administrator made it clear that many former anthracite users must substitute bituminous this year.

Steam coal users are actively in the market for stock. Their requirements for present needs absorb practically all the coal reaching the city, the small excess going to help increase reserves of those of the larger concerns which have suitable space for storage. In many instances steam coal users, who in the past have been satisfied with day to day shipments, are attempting to accumulate a supply and are providing themselves with storage of somewhat limited capacity.

Anthracite—Some of the retailers find indications of a slight improvement in quantity of anthracite arriving, though the amount remains so small that not much progress can be made in deliveries. The special committee appointed by the Detroit Board of Commerce to call on the federal fuel administrator and seek an increase in the allotment of anthracite to Michigan and Detroit, is being increased by the addition of out-of-town business men. It is asserted that the importance of the work Detroit is performing for the government and the necessity of keeping labor in this city demand further relief, at least to the extent of making good with anthracite the 600,000 tons of smokeless and coke taken from Detroit domestic consumers.

Lake Trade—Lake shipments during last week were approximately 1,000,000 tons, having been the heaviest for several weeks. Instructions have been issued to mines to concentrate on shipments to the lakes and August is expected to far exceed the movement in July.

COLUMBUS

The diverting of a large tonnage to the Lake trade has caused a scarcity in domestic trade in certain localities. Domestic demand is still good and there is also a good trade in steam sizes. The tone of the trade is generally satisfactory.

Domestic demand is now attracting considerable attention in Ohio because of the recent ruling which diverts a larger proportion of the coal to the Lakes. Already retailers are asking for tonnage as their surplus stocks are generally small. The domestic demand is fairly active, although dealers have not the volume of business on their books as was the case several months ago. All teams and trucks are kept busy, however.

A large part of the coal in the yards is now mine-run, which is being accepted by most private users without complaint. Pocahontas is scarce and only mine-run is arriving. There are still some West Virginia splints on the local market. But the main bulk comes from Ohio mines. Retail prices are firm at the levels which have prevailed for some time. New freight rates are being worked out and still higher advances are expected.

The Lake trade is one of the busy departments of the industry. Lake shippers are exerting every effort to get a large tonnage to the Northwest. The deficiency caused by the late opening is being gradually made up, but there is still a marked shortage. The vessel movement is active as is that of coal off the docks of the upper Lake ports and no congestion is reported.

The steam trade is also active, as steam users are trying to accumulate a surplus. Their efforts have only met with partial success. The public service concerns have succeeded in laying in a fair surplus. Schools are mostly provided for and public institutions are now being looked after. There is still a considerable tonnage of screenings coming into the local market because of the activity in the Lake trade.

Production is active in all of the Ohio producing fields. The car supply has been better, amounting to practically 100 per cent. in all districts. On the whole the output of the Hocking Valley and Pomeroy Bend districts has been close to 90 per cent. and in other fields it has ranged from 80 to 90 per cent. of normal.

CINCINNATI

Increasing demands of East, tending to cut down local supply, are causing some worry among the trade. Domestic situation is good, but manufacturers are uneasy.

A factor which, it is declared both by operators and local fuel authorities, will be of increasing importance as the season advances, is the necessary diversion of much West Virginia coal which formerly came to Cincinnati and the Middle West to the East, to take care of the enormous needs of the seaboard, especially in the manufacturing centers. It is generally conceded that the inability of the industry to meet the high production figures set by the National Fuel Administration, and the consequent shortage in the amount of coal available for the East from its usual sources, make it unavoidable to divert to that section some coal which normally goes elsewhere; but, at the same time, the diversion of so large a proportion of the fuel relied upon by the great manufacturing districts of the Middle West is viewed with considerable concern, especially as there is at present no immediate prospect of finding a satisfactory volume of coal with which to supply the deficiency.

While the eastern Kentucky field, with large supplies of first-class coal, is virtually at the door of this market, and much of its fuel passes through the Cincinnati gateway bound to the Lakes and Northern points generally, it is stated by those in touch with the situation that much, if not all of it, is already contracted for, making it unavailable at this time to meet the emergency created by the diversion of the West Virginia product. The suggestion that Ohio and other parts of the Middle West may use Ohio, Indiana and western Kentucky coal meets with the same objection, aside from the fact that some of this fuel is much inferior to that for which it is proposed as a substitute.

The demands of the Lake movement are being met as usual just now, the volume of traffic being extremely heavy; and while there is, under the circumstances, comparatively little coal available for storage by local manufacturers, it is still felt that as long as domestic consumers are covered as well as they now are, the fuel which will be available when the Lake movement ceases, plus that which can be stored in the meantime, will meet the situation.

LOUISVILLE

General demand for all grades of coal continues strong, with supplies light. Car supply growing more acute. Retailers unable to secure enough coal to take care of domestic trade, much less build up, hard stocks.

There has been absolutely no let-up in the general demand for all grades of coal. Everything is selling as quickly as it can be had, although there is little stocking demand for western Kentucky nut and slack, as a number of large consumers have had bad experiences this season with such coal firing. During the last week of July several fires were going in local stocks simultaneously. No trouble of this kind has been reported from domestic consumers, many of whom have taken nut and slack.

General tightening up of credits has made it somewhat harder for the domestic consumer to secure coal this season. At the present time one concern is quoting 60 days' credit to old customers, and 30 days to new ones. Many others are quoting 30 days to old customers and cash to all new ones, while several houses are refusing to handle anything other than cash business. No orders are being delivered where the customer hasn't paid off his 1917-18 bill completely. In some cases dealers are accepting season orders with provisions that they will make deliveries of one and two ton lots as the consumer can pay for it, and take care of such orders before other rush business later on, but on the basis of the market price at time of delivery.

In eastern Kentucky it is reported that more coal is now moving into the North and South Carolina district than usual Much of the coal from the Clinchfield region has been delivered by orders of the Fuel Administration, and rates over the Louisville & Nashville have been made which enable eastern Kentucky coal to go to the textile mills, and cotton oil concerns. Some coal is also going to Southern ports for export, but a large portion of the production is going to the lake district and to the coal byproducts plants.

Wagon mines of the state are now being forced to load in box cars entirely, and all open cars and gondolas are being supplied to the tipple mines. However, even box cars are scarce, and all classes of mines have been having trouble in securing cars during the past ten days, due partly to the fact that hauls into the Lake District are keeping cars on the road for long intervals, and returns are slow.

BIRMINGHAM

Trade conditions without material change, demand continuing strong for both domestic and steam product. Production gaining slowly. Labor working more steadily, with slight increase in working forces. Shortage of equipment for loading reported in some instances.

Alabama is making slow but steady strides in the production of coal, the output for the week ending July 20 reaching the highest figure of record for this district. Figures in the hands of the district representative of the fuel administration not yet compiled, indicate that the week ending July 27 showed a slight gain over the previous period. This is accounted for by steadier work on the part of the miners and some increase in the working forces.

The steam coal demand is steady, but the gain in production has not been sufficient as yet to noticeably affect the supply in contrast with requirements. The railroads continue to draw heavily on the output of commercial mines, the Southern having increased the percentage of its priority order for the present week. However, due to adjustments made in the rating of production at some of the mines, the additional tonnage to be taken is not large.

Wholesale and retail trade in domestic sizes is stiff, and consumers are stocking as rapidly as the supply will admit. Receipts by dealers would be satisfactory under normal trade conditions at this season of the year, but the propaganda of the fuel administration urging that winter coal be

laid in without delay has been 100 per cent. effective here and retail yards are kept barren of stocks.

Short delays have been experienced at some mines on account of equipment not being available for loading, but this has not crippled production materially.

Coke

CONNELLSVILLE

Set price on coke from dumps. Working conditions improved. Foundries evidently stocking.

The working over of old dumps at coke works has increased to such an extent that the Fuel Administration has fixed a price on the material, when it is cleaned and otherwise prepared, but not sized, the price being $1 under the foundry coke price, which makes it $6 in the case of Connellsville. Crushed coke, fixed long ago at $7.30 for sizes over 1-in., the screen being recently changed to ¾-in., is assumed by the trade to include these old screenings also, if they are sized, coke under ¾-in. being by regulation $1 under blast furnace coke, or $5 in the case of Connellsville. Coke breeze was recently fixed at half the blast furnace coke price, which makes $3 for Connellsville.

An excellent trade has been developed for the material obtained from old dumps and the market for the best material has been quite clearly defined for several weeks past at $6.50. Those who are producing the material will be disposed to make sure that it comes under the Fuel Administration regulations as to size, for otherwise they could charge only $6. On account of improvement in labor conditions several operators have within the past ten days announced their intention of going into this screening business. Previously they had been indisposed to do so by reason of not being able to spare the labor.

Working conditions generally throughout the region have improved, not through the accretion of men but through their putting in fuller time, as a result of the strenuous propaganda of the operators and of some Government activities. What concerns operators now is the prospective extension of the draft age limits, and the operators intend to see to it that the local and district draft boards impress upon registrants, to the extent permitted by Washington, the importance of remaining at preferred occupations.

The idea was entertained a few weeks ago that by this time coke would be visibly plentiful in the market and the possibility was considered of there being enough coke offered to depress prices. Since then production has increased by about 10,000 tons a week and yet there is not only no appearance of coke being plentiful, but there is practically no furnace coke offered in the market. The trade is seeking a reason for the condition and finds it in the stocking of coke by consumers. Blast furnaces do not admit that they are stocking coke to any extent but it is believed that many are doing so in a limited way.

Offerings of foundry coke continue relatively heavy, and all is absorbed. There is reason to believe that many foundries are stocking coke quite freely, prompted by the extremely scant supplies of last winter. Of the total make a proportion can be offered as foundry coke much in excess of the normal consumption of foundry coke. In times past foundry coke had to meet three requirements, among others, 72 hr. burning, careful selection, and shipment in box cars. Box cars having largely disappeared, that requirement is out of the way, and as to selection there is no definite rule. As to 72-hr. burning, the system of working always produces a large proportion of such coke. The market is quotable at the set limits of $6 and $7 respectively for furnace and 72-hr. foundry, per net ton at ovens.

The "Courier" reports production in the Connellsville and Lower Connellsville region in the week ended July 27 at 352,625 tons, an increase of 975 tons.

Buffalo—This territory rejoices that it has two large byproduct coke plants, but for which the supply might run short. A third plant is in process of construction, but it will not be ready for use this season. The output that is not turned out here is bought in the Connellsville district at Government prices. It is not always easy to obtain a supply, but the furnaces continue to run practically on full time. Jobbers sell a moderate amount of breeze only. The Lake receipts of iron ore for the week were 336,350 gross tons, which is quite up to the season's average.

Middle Western

GENERAL REVIEW

Situation good. Car supply almost perfect. Labor conditions better. Market holding up well to Government price. Railroads are heavy buyers. Eastern coal arrives in substantial amounts.

The coal situation in the mid-western territory is good. All the larger coal-carrying railroads, with the exception of the Wabash, report nearly a perfect car supply in their respective coal producing territories. Evidently there is also some improvement in the labor supply because early reports show that the tonnage for the week will perhaps equal, if not exceed, the records recently established. The outlook on transportation and labor is better than it has been for some time.

Market conditions remain without any radical or serious change. All the high-grade fuels, both steam and domestic, are holding firm on a basis of "Government price current at time of shipment." Some of the poorer-grade coals, however, from both Indiana and Illinois, are selling below the prices as set by the Government, but this only applies to steam sizes, as the demand for domestic coal is keeping up as steady as ever.

The railroads are buying a big tonnage, both for their current needs and for storage purposes. This, coupled with the large order placed a little while ago by the Government for its various training camps, etc., has brought about no apparent shortage. This augurs well for any tonnage that might be expected from this territory.

Eastern coal continues to arrive in this market in substantial lots. This is especially true of the Lower Lake ports. It is said, however, that there is a temporary shortage at Duluth, but to counteract this there is a big tonnage of Lake coal at Chicago. Last year one of the railroads with dock connections handled during the first 25 days of July 4764 cars of Lake coal. For the same period this year its figures show 5673 cars, or almost a 25 per cent. increase.

In short, today the coal situation, both from the standpoint of the producer and the consumer, is better than it has been for some time.

MILWAUKEE

Schedule of prices for anthracite finally announced. Small dealers claim to be at a disadvantage. Liberal receipts of hard coal during the week.

Coal consumers in the Milwaukee district are now able to figure the cost of their anthracite supply for the coming winter, as the scale of prices for anthracite has been made known. Chestnut, delivered at the curb, is now $11.30 per ton, stove $11.20, egg $11 and buckwheat $9.75. The usual charge of 50c. per ton applies where coal is carried in. All anthracite delivered between June 1 and July 27, when the new rates were made effective, must be billed 40c. under the above schedule. If the Fuel Administration enforces the ruling made early in the season, when the usual advance of 10c. per ton per month during the summer was discontinued, an addition of 30c. per ton will automatically apply on the first of September.

The soft coal schedule continues as follows: Pittsburgh, Youghiogheny and Hocking lump $6.80, pile run $6.55 and screenings $6.30; West Virginia splint lump $7.30, pile run $7.05 and screenings $6.80; Kanawha gas lump and egg $8.05, pile run $7.05 and screenings $6.80. The carrying-in charge of 50c. per ton applies to soft coal also.

Three cargoes of anthracite aggregating 36,672 tons, were docked since last week's report. A correction in the July report shifted 7,300 tons from the hard coal column to the bituminous total. The record of cargoes by Lake now stands:

	Hard	Soft
May	85,700	389,547
June	53,947	434,094
July	*99,616	*532,719
Total	239,263	1,356,360

*Subject to slight revision.

Last year's record, including receipts by carferry, which are not embraced in the above figures for 1918, was: Hard coal, 257,643 tons; soft coal, 1,266,644.

ST. LOUIS

Market is rather easy in a general way on practically everything. Steam is slow and domestic is letting up, excepting on Carterville. Country demand easier. Car supply poor, and unequally distributed. In a general way conditions are satisfactory.

The local situation is easy and there is not the demand that might be expected, and such as exists in other cities of this size.

The steam trade seems to be taking things rather easy and not giving much thought to the future. A recent survey made by the Manufacturers' Association shows that there is practically no storage coal in St. Louis for manufacturing purposes and the manufacturers seem to think that there is no need for any worrying, while the coal operators and the Fuel Administration are striving to prevent any serious shortage this coming winter by persuading users to store coal now. This has been brought about by the fact that there has been a surplus for the past few months and many consumers think that this is going to continue.

The domestic demand has been off for the last week and this will likely continue for the next month or longer, as far as Mt. Olive and Standard coals are concerned.

The shortage of Carterville continues and the demand cannot be met. There will be no change in this situation even though there may be a little more Carterville coming in than is expected now. It will be impossible to supply the Carterville demand.

The country business, which has been good up to the present, is letting up some and this has a tendency to throw an additional tonnage on the local market.

St. Louis is without question the best coaled city in the country today among the larger cities as far as domestic tonnage is concerned. The figures turned in by the retailers on Aug. 1 have not been totalled, but will show an enormous tonnage of storage coal.

Conditions in the fields seem to run about the same week after week. In the Carterville field cars have been a trifle better this week and a little more domestic tonnage has come through. Labor conditions are still poor and show little improvement.

The Fuel Administration has ordered that the Johnston City Coal Co. and the Searles Coal Co., both of Johnston City, discontinue shipping railroad fuel, and this throws a minimum of about 4,000 tons a week on the market. Other mines have had their railroad tonnage reduced, so that there will be more domestic coal from this field.

In the Duquoin field conditions are much the same as in the Carterville, with the railroads getting considerable tonnage.

The Mt. Olive field is the quiet, easy-going section of southern Illinois, with a supply that takes care of the demand, a fairly good car supply, good movement, and in a general way satisfactory conditions.

The Standard situation is still a problem. Some mines continue to get all the equipment they can handle and others get in only two or three days a week. This is causing considerable unrest among the miners, as they keep moving about from one mine to another.

Screenings are long and the market is not available for the tonnage produced, but if the railroad tonnage is cut down in the Carterville field it will force a greater tonnage from this district, which will take care of the surplus screenings. The market on this coal has been off some, but is commencing to come up to the Government maximum.

Two-inch lump is quoted around $2.45 and $2.50, while egg and nut and other lump sizes go at $2.55. Mine-run is selling at $2.25 and screenings at about $1.70.

There are no Eastern coals and a very large tonnage of Arkansas coming in.

The Government maximum price is, per net ton f.o.b. mines:

	Williamson and Franklin County	Mt. Olive and Staunton	Standard
6-in. lump	$2.55@2.70	$2.55@2.70	$2.40@2.70
3x6-in. egg	2.55@2.70	2.55@2.70	2.35@2.55
2x3-in. nut	2.55@2.70	2.55@2.70	2.35@2.55
No. 2 nut	2.55@2.70	2.55@2.70	.....
No. 3 nut	2.55@2.70	2.55@2.70	.....
No. 4 nut	2.55@2.70	2.55@2.70	.....
No. 5 nut	2.05@2.20	2.05@2.20	.....
2-in. scrgs.	2.05@2.20	2.05@2.20	1.25@1.50
3-in. lump	.....	.....	2.25@2.40
2-in. lump	.....	.....	2.25@2.40
Steam egg	.....	.....	2.25@2.40
Mine run	2.35@2.50	2.35@2.50	1.85@2.00
Washed:			
No. 1	2.75@2.90	2.75@2.90	.....
No. 2	2.75@2.90	2.75@2.90	.....
No. 3	2.55@2.75	2.55@2.75	.....
No. 4	2.55@2.75	2.55@2.75	.....
No. 5	2.05@2.20	2.05@2.20	.....

Williamson and Franklin County rate is $1.10; Duquoin field, $1; Standard and Mt. Olive fields, 95c.